



Radiation Inspection Branch Environmental Monitoring Summary for 2015

June 2016

NOTE: Items within these environmental summaries have been removed due to confidential homeland security information under The Texas Public Information Act and House Bill 9, Gov. § code 418.

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Introduction

The document consists of the data collected for each monitoring point at each facility. The data are presented in the same manner as in the past. Limits of detection were not included with data in an effort to reduce the space required for data entry. A listing of expected limits of detection for various media, geometries, and radionuclides is found in the appendices. Maps of the facilities are included, but some details have been omitted. Specific information about individual facilities can be found in the license files. Redacted copies of this and previous annual reports can be found at <http://www.dshs.state.tx.us/radiation/publications.shtml>

All analyses of environmental media, i.e., soil, air, water, vegetation, and sewage are performed by the Texas Department of State Health Services (DSHS), Laboratory Services Section. The Laboratory Services Section operates a highly capable radio-chemistry program. Currently, the Environmental Sciences Branch participates in a program sponsored by the United States Department of Energy (USDOE), referred to as Department of Energy Laboratory Accreditation Program. It was developed by the USDOE in order to provide quality assurance and control for USDOE contractors. The most recent results of the Laboratory Services Section's performance in these "cross checks" can be found in the appendices to this document or on the internet at the following location: <http://www.eml.st.dhs.gov/qap/reports/>.

Landauer, Inc. performs Optically Stimulated Luminescence (OSL) readings for the facilities that have neutron sources. Approximately 200 OSLs are exchanged and read each calendar quarter. Background is subtracted from all station readings except for Comanche Peak Nuclear Power Plant, South Texas Project, and Pantex. Background is not subtracted from these three locations because the readings identify ambient doses.

Analysis of sample data from the monitored facilities indicated no release of radioactive material to the environment that exceeded the regulatory or license limits of the DSHS or any other agency such as the United States Nuclear Regulatory Commission or the USDOE. Some of the OSL readings at a few of the monitored facilities exceeded 100 mrem for the year. All licensed facilities are required by rule to document that exposures from conducting operations do not cause doses in excess of the regulatory limits to employees or individual members of the general public. The documentation is maintained for inspection by the Radiation Branch. Licensees are allowed to use mitigating factors, such as occupancy and distance to nearest occupied areas, in demonstrating compliance with those limits. Taking into account occupancy all facilities monitored during the 2015 calendar year were found to be in compliance with radiation dose limits.

Any questions should be directed to Robert E. Free at 512-834-6770, ext. 2022 or robert.free@dshs.state.tx.us.



Robert Free

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Fixed Nuclear Facilities

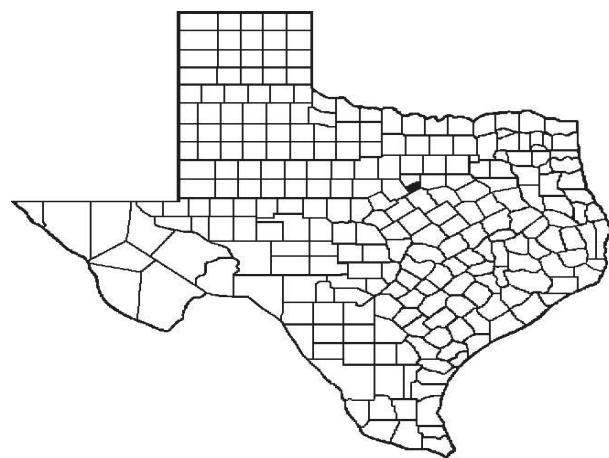
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Comanche Peak Nuclear Power Plant

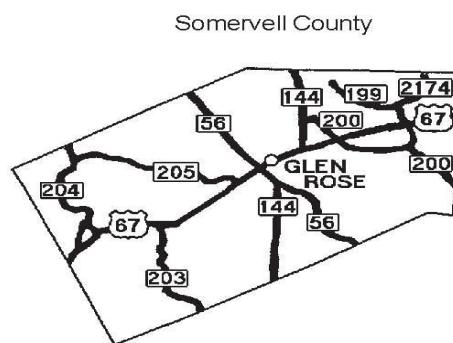
Radiation Branch Site No. 031

Comanche Peak Nuclear Power Plant (CPNPP) is a two-unit nuclear-fueled power plant owned and operated by Luminant Power. The plant is located in Somervell County four and one-half miles northwest of Glen Rose and approximately 80 miles southwest of downtown Dallas.

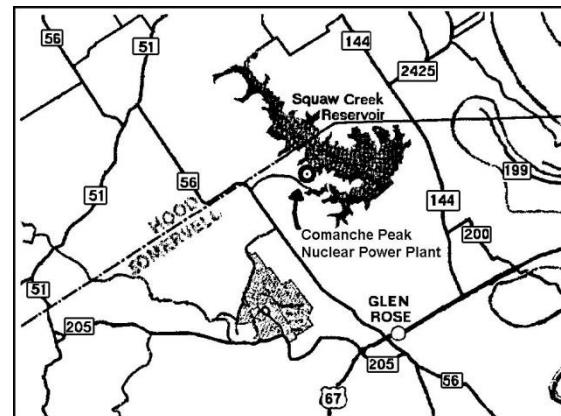
CPNPP, Luminant Power's sole nuclear power plant, with an operating capacity of 2,500 megawatts [two Westinghouse 1,250 megawatt (electric) pressurized water reactor units], began operation in 1990, although fuel had been received on-site in 1982-1983. The plant has approximately 1,300 employees. The Radiation Branch surveillance program consists of OSL monitoring and sampling air, fish, food products, sediment, vegetation, and water.



Shaded area indicates location of Somervell County

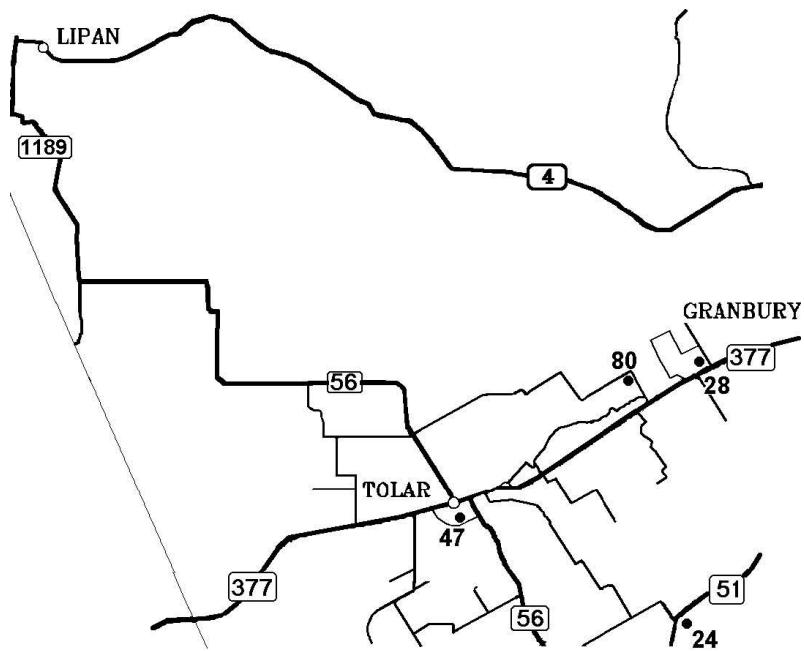
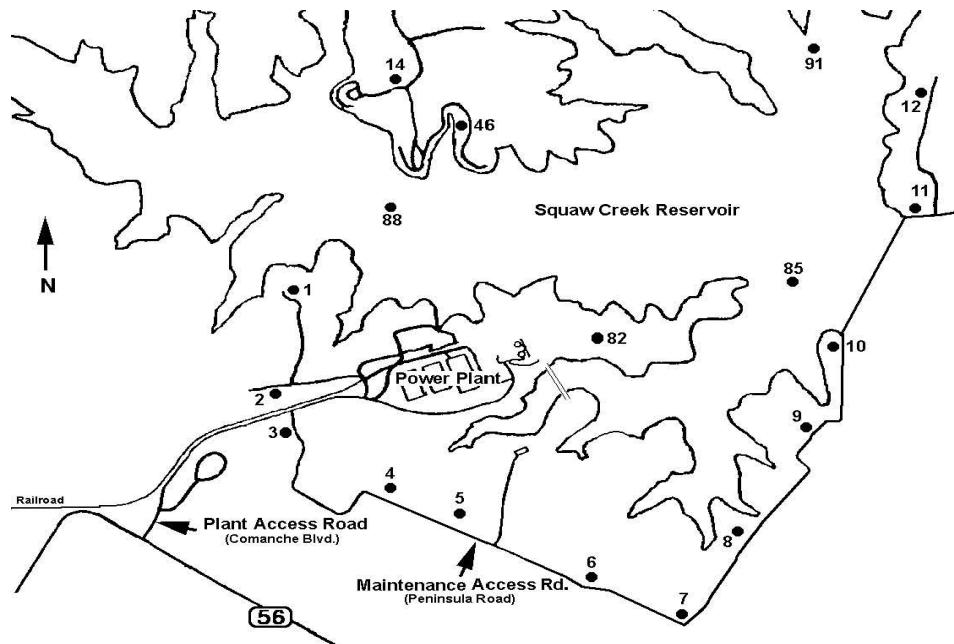


Somervell County

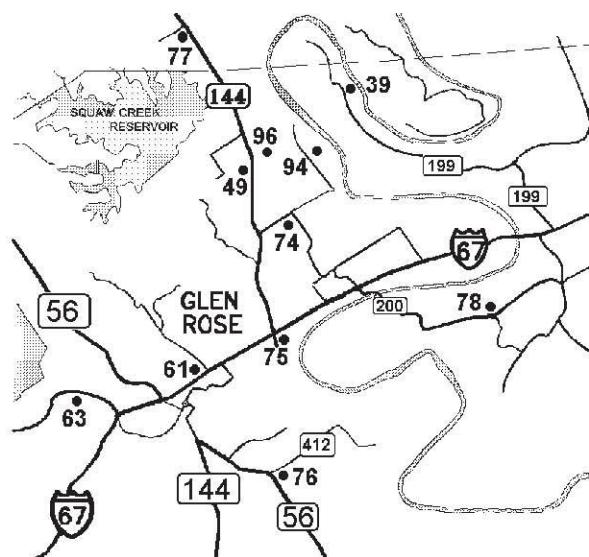
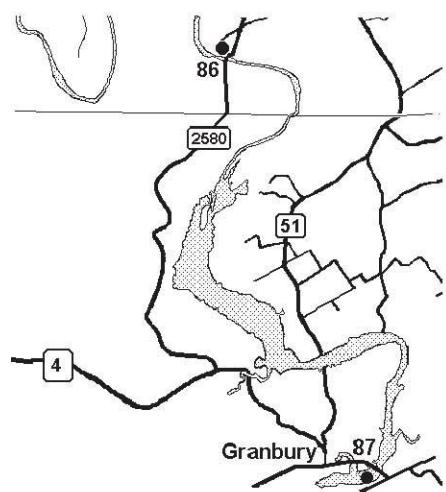
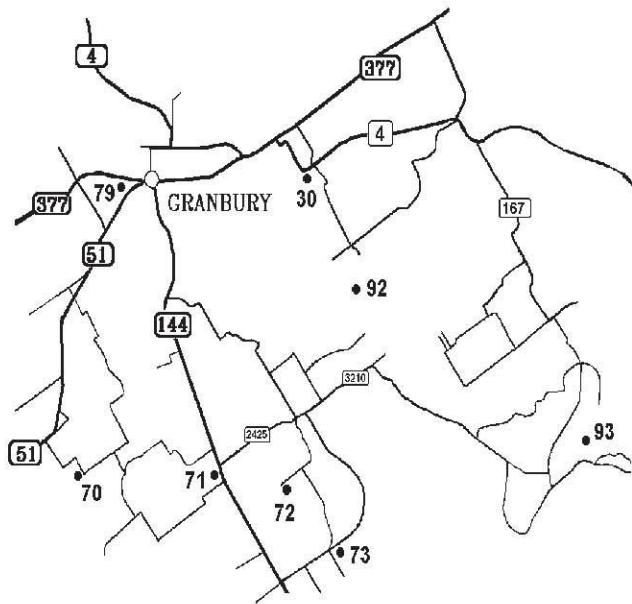
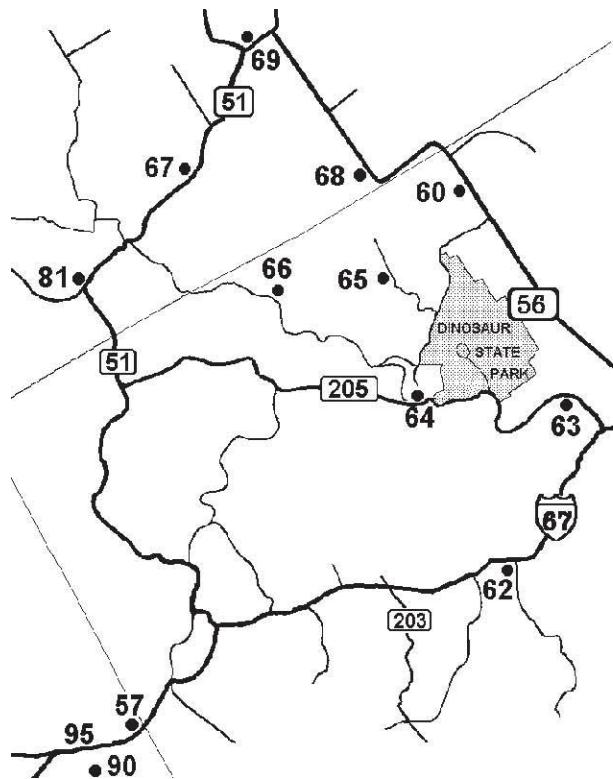


**Comanche Peak Nuclear Power Plant
Monitoring Station Locations**

Note: Sample type not indicated on maps.



**Comanche Peak Nuclear Power Plant
Monitoring Station Locations**



Comanche Peak Nuclear Power Plant
Optically Stimulated Luminescent Dosimeter (OSL) Monitoring Results¹
(bi-monthly and annual readings are in mrem)

OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL) MONITORING RESULTS¹

(QUARTERLY AND ANNUAL READING ARE IN MREM)

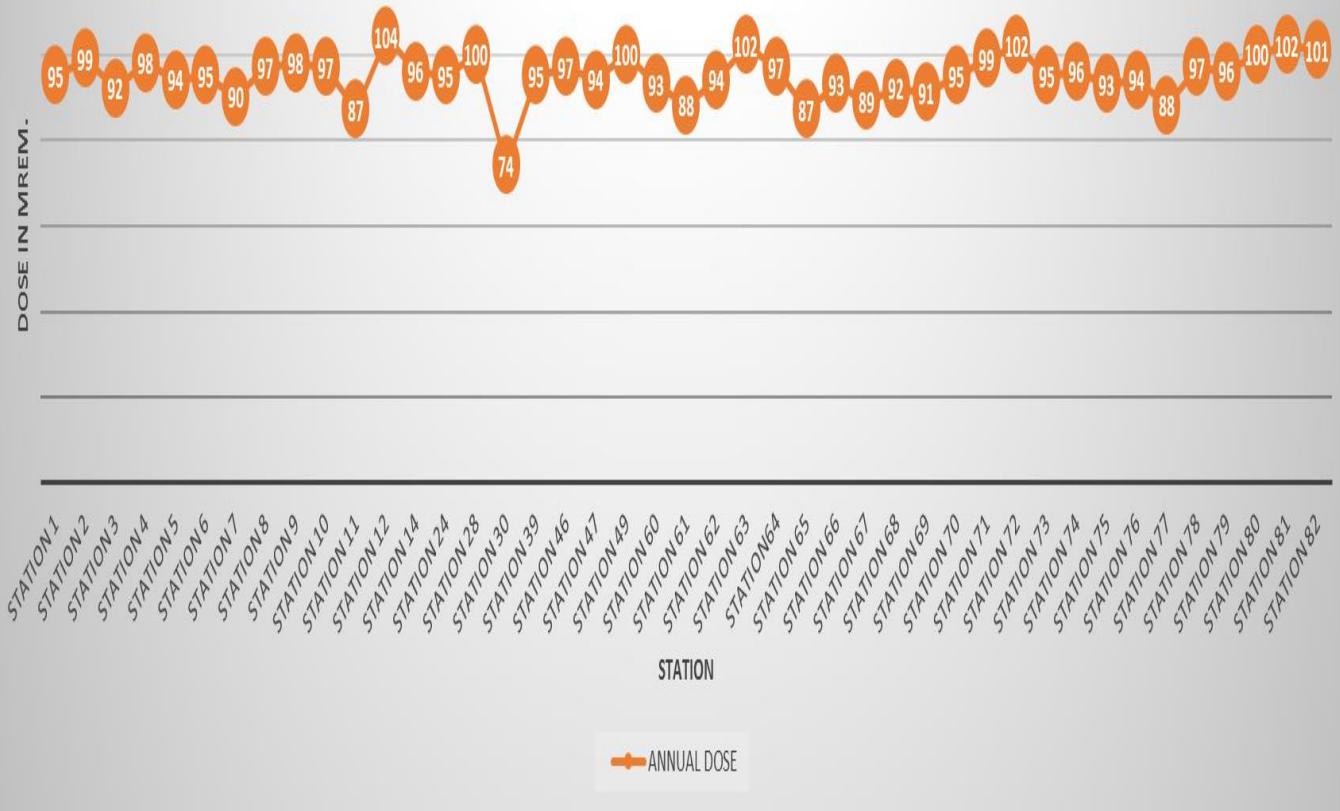
	Q1	Q2	Q3	Q4	ANNUAL DOSE	NOTES
STATION 1	24	22	25	24	95	
STATION 2	24	21	26	28	99	
STATION 3	22	21	25	24	92	
STATION 4	24	24	26	24	98	
STATION 5	23	22	24	25	94	
STATION 6	25	22	24	24	95	
STATION 7	23	21	23	23	90	
STATION 8	24	23	25	25	97	
STATION 9	25	24	24	25	98	
STATION 10	24	24	24	25	97	
STATION 11	21	20	22	24	87	
STATION 12	24	23	28	29	104	
STATION 14	24	22	25	25	96	
STATION 24	24	22	25	24	95	
STATION 28	25	24	25	26	100	
STATION 30	*	23	26	25	74	² Q1-OSL Missing
STATION 39	23	23	23	26	95	
STATION 46	23	24	25	25	97	
STATION 47	24	22	24	24	94	
STATION 49	*	*	25	25	100	² Q2-OSL Missing:
STATION 60	22	22	24	25	93	
STATION 61	22	21	22	23	88	
STATION 62	23	22	24	25	94	
STATION 63	24	24	27	27	102	
STATION 64	24	23	25	25	97	
STATION 65	22	20	22	23	87	
STATION 66	23	22	23	25	93	
STATION 67	21	22	24	22	89	
STATION 68	22	20	26	24	92	
STATION 69	22	21	24	24	91	
STATION 70	23	*	25	23	95	² Q2-OSL Missing
STATION 71	24	24	25	26	99	
STATION 72	26	24	26	26	102	
STATION 73	23	*	24	25	95	² Q2-OSL Missing
STATION 74	25	22	24	25	96	
STATION 75	23	22	24	24	93	
STATION 76	23	21	26	24	94	
STATION 77	21	20	22	25	88	
STATION 78	24	24	24	25	97	
STATION 79	23	22	26	25	96	
STATION 80	24	24	26	26	100	
STATION 81	23	23	27	29	102	
STATION 82	*	*	26	25	101	² Q1-OSL Missing

NOTE: ¹Background is not subtracted from the data.

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

Comanche Peak Nuclear Power Plant
Annual Dose Reading by Sampling Stations.

ANNUAL OSL DOSE MONITORING RESULTS FOR COMANCHE PEAK NUCLEAR POWER PLANT.



Comanche Peak Nuclear Power Plant
Environmental Sample Results

Air Iodine $\mu\text{Ci}/\text{ml}$			I-131	Air Particulate Ci/ml			Beta
Date	Lab No	Station		Date	Lab No	Station	
06-Jan-15	AC76015	057	<5.1e-15	06-Jan-15	AC76014	057	2.62e-14
06-Jan-15	AC76017	001	<5.2e-15	06-Jan-15	AC76016	001	2.61e-14
13-Jan-15	AC76089	001	<5.0e-15	13-Jan-15	AC76088	001	3.23e-14
13-Jan-15	AC76091	057	<4.8e-15	13-Jan-15	AC76090	057	3.15e-14
20-Jan-15	AC76954	057	<4.9e-15	20-Jan-15	AC76951	001	4.30e-14
27-Jan-15	AC78297	001	<2.1e-12	20-Jan-15	AC76953	057	4.49e-14
27-Jan-15	AC78299	057	<6.2e-15	27-Jan-15	AC78296	001	1.21e-12
03-Feb-15	AC79353	001	<5.4e-15	27-Jan-15	AC78298	057	2.12e-14
03-Feb-15	AC79355	057	<5.4e-15	03-Feb-15	AC79352	001	2.12e-14
10-Feb-15	AC80063	001	<4.8e-15	03-Feb-15	AC79354	057	2.24e-14
10-Feb-15	AC80065	057	<4.9e-15	10-Feb-15	AC80062	001	3.27e-14
17-Feb-15	AC80825	057	<5.1e-15	10-Feb-15	AC80064	057	3.31e-14
17-Feb-15	AC80827	001	<5.3e-15	17-Feb-15	AC80824	057	2.91e-14
24-Feb-15	AC81959	057	<5.4e-15	17-Feb-15	AC80826	001	2.77e-14
24-Feb-15	AC81961	001	<5.8e-15	24-Feb-15	AC81958	057	2.08e-14
03-Mar-15	AC82655	001	<5.1e-15	24-Feb-15	AC81960	001	1.96e-14
03-Mar-15	AC82657	057	<5.6e-15	03-Mar-15	AC82654	001	2.14e-14
10-Mar-15	AC83921	001	<4.8e-15	03-Mar-15	AC82656	057	2.09e-14
10-Mar-15	AC83923	057	<3.5e-15	10-Mar-15	AC83920	001	1.69e-14
17-Mar-15	AC84540	001	<4.6e-15	10-Mar-15	AC83922	057	1.89e-14
17-Mar-15	AC84542	057	<5.2e-15	17-Mar-15	AC84539	001	2.13e-14
24-Mar-15	AC85950	057	<4.5e-15	17-Mar-15	AC84541	057	1.66e-14
24-Mar-15	AC85952	001	<4.9e-15	24-Mar-15	AC85949	057	1.94e-14
31-Mar-15	AC87016	001	<5.2e-15	24-Mar-15	AC85951	001	2.14e-14
31-Mar-15	AC87018	057	<3.1e-15	31-Mar-15	AC87015	001	2.16e-14
07-Apr-15	AC87563	001	<5.5e-15	31-Mar-15	AC87017	057	1.89e-14
07-Apr-15	AC87565	057	<2.9e-15	07-Apr-15	AC87562	001	2.25e-14
14-Apr-15	AC88219	001	<5.1e-15	07-Apr-15	AC87564	057	2.05e-14
14-Apr-15	AC88221	057	<4.5e-15	14-Apr-15	AC88218	001	1.78e-14
21-Apr-15	AC89123	001	<5.2e-15	14-Apr-15	AC88220	057	1.60e-14
21-Apr-15	AC89125	057	<4.5e-15	21-Apr-15	AC89122	001	1.65e-14
26-Apr-15	AC89950	057	<4.6e-15	21-Apr-15	AC89124	057	1.53e-14
28-Apr-15	AC89948	001	<1.2e-14	28-Apr-15	AC89947	001	2.58e-14
28-Apr-15	AC90624	001	<6.1e-15	28-Apr-15	AC89949	057	2.16e-14
28-Apr-15	AC91707	001	<5.7e-15	28-Apr-15	AC90623	001	3.81e-14
28-Apr-15	AC92429	001	<6.2e-15	28-Apr-15	AC91706	001	2.26e-14
06-May-15	AC90626	057	<4.5e-15	28-Apr-15	AC92428	001	2.14e-14
19-May-15	AC92431	057	<4.8e-15	05-May-15	AC90625	057	3.74e-14
26-May-15	AC93526	001	<5.8e-15	12-May-15	AC91708	057	1.36e-14
26-May-15	AC93528	057	<5.1e-15	26-May-15	AC93525	001	1.48e-14
26-May-15	AC94036	001	<5.7e-15	26-May-15	AC93527	057	9.04e-15
26-May-15	AC95039	001	<5.5e-15	26-May-15	AC94035	001	1.98e-14
26-May-15	AC96642	001	<9.2e-15	26-May-15	AC96641	001	1.69e-14
26-May-15	AC97113	001	<4.8e-15	26-May-15	AC95038	001	2.70e-14
02-Jun-15	AC94038	057	<4.6e-15	26-May-15	AC97112	001	1.80e-14
09-Jun-15	AC95041	057	<4.2e-15	02-Jun-15	AC94037	057	1.27e-14
16-Jun-15	AC96644	057	<6.7e-15	09-Jun-15	AC95040	057	1.78e-14
23-Jun-15	AC97111	057	<5.7e-15	09-Jun-15	AC95040	057	1.78e-14
30-Jun-15	AC98108	001	<5.9e-15	16-Jun-15	AC96643	057	1.17e-14

Comanche Peak Nuclear Power Plant
Environmental Sample Results

Air Iodine $\mu\text{Ci}/\text{ml}$			I-131	Air Particulate $\mu\text{Ci}/\text{ml}$			Beta
Date	Lab No	Station		Date	Lab No	Station	
30-Jun-15	AC98110	057	<4.9e-15	23-Jun-15	AC97110	057	1.19e-14
30-Jun-15	AC99023	001	<6.2e-15	30-Jun-15	AC99022	001	2.52e-14
07-Jul-15	AC99025	057	<5.2e-15	30-Jun-15	AC98107	001	2.04e-14
14-Jul-15	AC99516	001	<5.8e-15	30-Jun-15	AC98109	057	1.32e-14
14-Jul-15	AC99517	057	<4.7e-15	07-Jul-15	AC99024	057	1.46e-14
21-Jul-15	AD00504	057	<4.6e-15	14-Jul-15	AC99514	001	2.89e-14
21-Jul-15	AD00506	001	<5.5e-15	14-Jul-15	AC99515	057	1.79e-14
28-Jul-15	AD01379	001	<6.0e-15	21-Jul-15	AD00503	057	1.19e-14
28-Jul-15	AD01381	057	<4.8e-15	21-Jul-15	AD00505	001	2.04e-14
04-Aug-15	AD02786	001	<6.4e-15	28-Jul-15	AD01380	001	2.29e-14
04-Aug-15	AD02788	057	<5.4e-15	28-Jul-15	AD01382	057	1.40e-14
11-Aug-15	AD03974	001	<5.5e-15	04-Aug-15	AD02785	001	3.64e-14
11-Aug-15	AD03976	057	<4.9e-15	04-Aug-15	AD02787	057	1.95e-14
18-Aug-15	AD04616	001	<2.9e-15	11-Aug-15	AD03973	001	2.39e-14
18-Aug-15	AD04618	057	<4.4e-15	11-Aug-15	AD03975	057	1.27e-14
25-Aug-15	AD05007	001	<5.9e-15	18-Aug-15	AD04615	001	2.12e-14
25-Aug-15	AD05009	057	<4.8e-15	18-Aug-15	AD04617	057	3.56e-14
01-Sep-15	AD05269	001	<5.3e-15	25-Aug-15	AD05006	001	1.87e-14
01-Sep-15	AD05271	057	<4.4e-15	25-Aug-15	AD05008	057	1.13e-14
08-Sep-15	AD06045	057	<5.6e-15	01-Sep-15	AD05268	001	3.80e-14
08-Sep-15	AD06047	001	<4.8e-15	01-Sep-15	AD05270	057	2.14e-14
15-Sep-15	AD07471	001	<5.5e-15	08-Sep-15	AD06044	057	1.60e-14
15-Sep-15	AD07473	057	<5.0e-15	08-Sep-15	AD06046	001	1.020e-14
22-Sep-15	AD08110	057	<2.9e-15	15-Sep-15	AD07470	001	2.45e-14
22-Sep-15	AD08112	001	<4.7e-15	15-Sep-15	AD07472	057	2.09e-14
29-Sep-15	AD09189	001	<6.1e-15	22-Sep-15	AD08111	057	2.05e-14
29-Sep-15	AD09191	057	<5.3e-15	22-Sep-15	AD08113	001	2.11e-14
06-Oct-15	AD09657	057	<5.2e-15	29-Sep-15	AD09188	001	4.20e-14
06-Oct-15	AD09659	001	<4.5e-15	29-Sep-15	AD09190	057	3.72e-14
13-Oct-15	AD10358	001	<5.3e-15	06-Oct-15	AD09656	057	3.02e-14
13-Oct-15	AD10360	057	<4.5e-15	06-Oct-15	AD09658	001	3.16e-14
20-Oct-15	AD11220	001	<5.2e-15	13-Oct-15	AD10357	057	3.67e-14
20-Oct-15	AD11222	057	<4.5e-15	13-Oct-15	AD10359	001	3.54e-14
27-Oct-15	AD12066	057	<7.6e-15	20-Oct-15	AD11219	001	2.91e-14
27-Oct-15	AD12068	001	<9.1e-15	20-Oct-15	AD11221	057	2.76e-14
27-Oct-15	AD12470	001	<6.3e-15	27-Oct-15	AD12065	057	2.09e-14
03-Nov-15	AD12468	057	<5.6e-15	27-Oct-15	AD12067	001	2.35e-14
10-Nov-15	AD13094	001	<3.4e-15	27-Oct-15	AD12469	001	3.13e-14
10-Nov-15	AD13096	057	<7.8e-15	03-Nov-15	AD12467	057	3.10e-14
17-Nov-15	AD13928	001	<7.4e-15	10-Nov-15	AD13093	001	2.75e-14
17-Nov-15	AD13930	057	<5.0e-15	10-Nov-15	AD13095	057	2.60e-14
24-Nov-15	AD14621	001	<1.2e-14	17-Nov-15	AD13929	057	2.38e-14
24-Nov-15	AD14623	057	<5.4e-15	17-Nov-15	AD13931	001	2.48e-14
01-Dec-15	AD15015	001	<6.9e-15	24-Nov-15	AD14620	001	2.63e-14
01-Dec-15	AD15017	057	<2.9e-15	24-Nov-15	AD14622	057	2.55e-14
08-Dec-15	AD16071	001	<7.8e-15	01-Dec-15	AD15014	001	1.22e-14
08-Dec-15	AD16073	057	<6.4e-15	01-Dec-15	AD15016	057	1.14e-14
15-Dec-15	AD17019	057	<7.2e-15	08-Dec-15	AD16070	001	3.40e-14
15-Dec-15	AD17021	001	<5.8e-15	08-Dec-15	AD16072	057	3.22e-14
22-Dec-15	AD17104	001	<9.6e-15	15-Dec-15	AD17018	057	3.13e-14
22-Dec-15	AD17106	057	<7.9e-15	15-Dec-15	AD17020	001	3.19e-14
29-Dec-15	AD17134	001	<7.5e-15	22-Dec-15	AD17103	001	2.94e-14
29-Dec-15	AD17136	057	<5.8e-15	22-Dec-15	AD17105	057	2.74e-14
29-Dec-15	AD17135	057	1.90e-14	29-Dec-15	AD17133	001	1.87e-14

**Comanche Peak Nuclear Power Plant
Environmental Sample Results**

Air Particulate Composite uCi/ml

Date	Lab No	Station	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	K-40	La-140	Mn-54	Nb-95	Zn-65	Zr-95
16-Jan-15	AC76037	1	<9.5e-6	<2.6e-6	<3.3e-6	<3.1e-6	<3.2e-6	<5.4e-6	<2.6e-6	1.7e-5	<3.4e-6	<2.9e-6	<3.0e-6	<8.6e-6	<4.4e-6
16-Jan-15	AC76038	57	<8.8e-6	<2.4e-6	<3.0e-6	<2.6e-6	<2.9e-6	<4.6e-6	<2.4e-6	1.6e-5	<3.5e-6	<2.7e-6	<2.7e-6	<6.2e-6	<4.4e-6
13-Apr-15	AC87874	1	<7.8e-6	<2.4e-6	<2.8e-6	<2.6e-6	<2.5e-6	<4.6e-6	<2.3e-6		<3.2e-6	<2.6e-6	<2.3e-6	<6.0e-6	<4.1e-6
13-Apr-15	AC87875	57	<9.0e-6	<2.5e-6	<3.0e-6	<3.1e-6	<3.3e-6	<5.3e-6	<2.8e-6		<3.1e-6	<2.7e-6	<2.6e-6	<6.3e-6	<4.7e-6
27-Jul-15	AD00941	1	<9.1e-6	<2.6e-6	<3.0e-6	<2.7e-6	<3.2e-6	<5.5e-6	<2.7e-6		<3.6e-6	<2.8e-6	<2.7e-6	<6.9e-6	<4.9e-6
27-Jul-15	AD00942	57	<8.3e-6	<2.4e-6	<2.8e-6	<2.5e-6	<2.3e-6	<5.1e-6	<2.4e-6	3.9e-5	<2.9e-6	<2.5e-6	<2.4e-6	<5.3e-6	<4.0e-6
26-Oct-15	AD11610	1	<8.9e-6	<2.8e-6	<3.2e-6	<2.9e-6	<3.2e-6	<5.6e-6	<2.8e-6		<3.6e-6	<2.7e-6	<2.8e-6	<6.3e-6	<4.9e-6
26-Oct-15	AD11611	57	<8.3e-6	<2.5e-6	<2.8e-6	<2.4e-6	<2.5e-6	<4.8e-6	<2.3e-6	3.8e-5	<3.2e-6	<2.6e-6	<2.4e-6	<6.1e-6	<4.0e-6

Fish uCi/g

07-Apr-15	AC88222	092	<2.1e-8	<4.3e-9	<4.7e-9	<3.9e-9	<4.4e-9	<1.1e-8	<8.1e-9	3.60e-6	<5.8e-9	<4.0e-9	<4.6e-9	<1.2e-8	<7.4e-9
14-Apr-15	AC88223	091	<1.9e-8	<5.3e-9	<5.9e-9	<4.7e-9	<5.3e-9	<1.4e-8	<5.8e-9	3.49e-6	<5.9e-9	<5.3e-9	<5.3e-9	<1.5e-8	<9.2e-9
28-Apr-15	AC89951	092	<1.8e-8	<3.7e-9	<4.4e-9	<3.7e-9	<3.9e-9	<8.9e-9	<6.1e-9	2.44e-6	<5.2e-9	<3.7e-9	<4.0e-9	<9.7e-9	<6.3e-9
28-Apr-15	AC89952	092	<2.1e-9	<4.7e-9	<5.2e-9	<4.1e-9	<4.6e-9	<1.2e-8	<7.3e-9	2.41e-6	<6.3e-9	<4.6e-9	<4.9e-9	<1.2e-8	<7.7e-9

Food Product uCi/g

10-Nov-15	AD13097	093	<3.3e-8	<8.7e-9	<1.2e-8	<8.8e-9	<9.3e-9	<2.1e-8	<1.1e-8	3.08e-6	<1.1e-8	<9.4e-9	<9.1e-9	<2.4e-8	<1.6e-8
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Sediment uCi/g

20-Jan-15	AC76955	088	<2.2e-7	<5.4e-8	<6.2e-8	<7.4e-8	<6.9e-8	<1.2e-7	<7.7e-8	4.98e-6	<5.2e-8	<6.2e-8	<7.0e-8	<1.6e-7	<1.1e-7
07-Jul-15	AC99026	088	<4.2e-7	<8.5e-8	<6.9e-8	<9.3e-8	<8.4e-8	<1.3e-7	<1.3e-7	4.13e-6	<1.3e-7	<7.3e-8	<8.9e-8	<2.5e-7	<1.4e-7

Vegetation for Milk uCi/g

27-Jan-15	AC78300	014	<4.7e-8	<9.5e-9	<9.6e-9	<9.7e-9	<1.1e-8	<2.4e-8	<1.8e-8	5.87e-6	<1.3e-8	<9.4e-9	<1.1e-8	<2.5e-8	<1.8e-8
24-Feb-15	AC81964	014	<4.5e-8	<8.9e-9	<9.0e-9	<9.7e-9	<9.8e-9	<1.8e-8	<1.8e-8	1.07e-6	<1.3e-8	<8.9e-9	<9.8e-9	<2.1e-8	<1.6e-8
31-Mar-15	AC87019	014	<5.2e-8	<1.1e-8	<1.3e-8	<1.1e-8	<1.2e-8	<2.7e-8	<1.9e-8	1.092e-5	<1.3e-8	<1.1e-8	<1.2e-8	<3.0e-8	<2.0e-8
31-Mar-15	AC87020	090	<5.2e-8	<1.1e-8	<1.2e-8	<9.6e-9	<1.1e-8	<2.7e-8	<2.0e-8	5.80e-6	<1.4e-8	<1.1e-8	<1.2e-8	<2.7e-8	<1.9e-8
28-Apr-15	AC89946	014	<6.3e-8	<1.3e-8	<1.4e-8	<1.3e-8	<1.5e-8	<2.8e-8	<2.5e-8	4.20e-6	<1.9e-8	<1.3e-8	<1.5e-8	<3.1e-8	<2.3e-8
26-May-15	AC93531	014	<4.8e-8	<9.3e-9	<9.4e-9	<8.3e-9	<8.7e-9	<2.2e-8	<2.1e-8	3.59e-6	<1.5e-8	<9.0e-9	<9.9e-9	<2.2e-8	<1.7e-8
30-Jun-15	AC98113	090	<7.6e-8	<1.7e-8	<1.6e-8	<1.5e-8	<1.6e-8	<3.6e-8	<3.3e-8	4.10e-6	<2.3e-8	<1.6e-8	<1.7e-8	<3.9e-8	<2.8e-8
30-Jun-15	AC98114	014	<4.7e-8	<1.1e-8	<1.2e-8	<9.1e-9	<1.1e-8	<2.7e-8	<1.8e-8	7.47e-6	<1.3e-8	<1.1e-8	<1.1e-8	<2.9e-8	<1.9e-8
28-Jul-15	AD01385	014	<7.6e-8	<1.6e-8	<1.7e-8	<1.5e-8	<1.6e-8	<3.6e-8	<3.0e-8	9.11e-6	<2.1e-8	<1.4e-8	<1.7e-8	<3.8e-8	<2.7e-8
25-Aug-15	AD05010	014	<7.0e-8	<1.4e-8	<1.5e-8	<1.4e-8	<1.6e-8	<3.2e-8	<2.7e-8	6.34e-6	<2.0e-8	<1.4e-8	<1.5e-8	<3.4e-8	<2.5e-8
29-Sep-15	AD09186	014	<6.0e-8	<1.3e-8	<1.5e-8	<1.3e-8	<1.4e-8	<3.2e-8	<2.4e-8	9.81e-6	<1.7e-8	<1.3e-8	<1.5e-8	<3.4e-8	<2.4e-8
15-Oct-15	AD09187	090	<1.2e-7	<2.5e-8	<2.6e-8	<2.3e-8	<2.5e-8	<5.3e-8	<4.4e-8	3.48e-6	<3.9e-8	<2.5e-8	<2.6e-8	<5.9e-8	<4.4e-8
27-Oct-15	AD12069	014	<8.0e-8	<1.7e-8	<1.8e-8	<1.8e-8	<2.0e-8	<3.4e-8	<3.2e-8	2.27e-6	<2.4e-8	<1.6e-8	<1.9e-8	<4.2e-8	<3.0e-8
24-Nov-15	AD14626	014	<1.4e-7	<2.1e-8	<2.3e-8	<2.1e-8	<2.1e-8	<4.8e-8	<6.8e-8	3.55e-6	<4.1e-8	<2.0e-8	<2.6e-8	<4.9e-8	<3.9e-8
29-Dec-15	AD17137	090	<5.9e-8	<1.1e-8	<1.2e-8	<1.2e-8	<1.3e-8	<2.2e-8	<2.5e-8	6.2e-7	<1.7e-8	<1.1e-8	<1.3e-8	<2.7e-8	<2.1e-8
29-Dec-15	AD17138	014	<1.1e-7	<2.3e-8	<2.6e-8	<2.5e-8	<2.4e-8	<5.0e-8	<5.0e-8	1.00e6	<3.9e-8	<2.4e-8	<2.7e-8	<5.1e-8	<4.1e-8

**Comanche Peak Nuclear Power Plant
Environmental Sample Results**

Water Composite uCi/ml			H3
Date	Lab No	Station	
03-Feb-15	AC76043	85	1.820e-5
03-Feb-15	AC76044	86	<1.0e-6
13-Apr-15	AC87880	85	1.730e-5
13-Apr-15	AC87881	86	<1.0e-6
27-Jul-15	AD00939	85	1.530e-5
27-Jul-15	AD00940	86	<1.0e-6
26-Oct-15	AD11616	85	1.690e-5
26-Oct-15	AD11617	86	<1.0e-6

Water Surface uCi/ml			Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	K-40	La-140	Mn-54	Nb-95	Zn-65	Zr-95	Beta
Date	Lab No	Station														
27-Jan-15	AC78301	085	<6.8e-9	<1.6e-9	<1.7e-9	<1.8e-9	<1.8e-9	<3.0e-9	<2.2e-9	<2.0e-9	<1.7e-9	<1.7e-9	<3.4e-9	<2.7e-9	2.04e-8	
27-Jan-15	AC78302	086	<7.6e-9	<1.9e-9	<2.0e-9	<2.1e-9	<2.1e-9	<4.0e-9	<2.6e-9	<2.6e-9	<2.1e-9	<2.0e-9	<4.3e-9	<3.4e-9	9.3e-9	
24-Feb-15	AC81962	085	<6.6e-9	<1.6e-9	<1.6e-9	<1.8e-9	<1.8e-9	<3.0e-9	<2.2e-9	2.7e-8	<1.9e-9	<1.6e-9	<1.7e-9	<3.5e-9	<2.9e-9	2.01e-8
24-Feb-15	AC81963	086	<7.9e-9	<2.1e-9	<2.1e-9	<2.0e-9	<2.2e-9	<4.0e-9	<2.7e-9	<2.7e-9	<2.0e-9	<2.0e-9	<4.3e-9	<3.5e-9	6.4e-9	
31-Mar-15	AC87021	086	<6.5e-9	<1.6e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.1e-9	<2.3e-9	<2.1e-9	<1.6e-9	<1.7e-9	<3.7e-9	<2.8e-9	8.9e-9	
31-Mar-15	AC87022	085	<8.0e-9	<2.1e-9	<2.0e-9	<1.9e-9	<2.0e-9	<4.0e-9	<2.7e-9	4.5e-8	<2.7e-9	<2.0e-9	<2.2e-9	<4.4e-9	<3.4e-9	2.47e-8
28-Apr-15	AC89944	085	<6.9e-9	<1.6e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.2e-9	<2.4e-9	<2.2e-9	<1.6e-9	<1.8e-9	<3.6e-9	<2.8e-9	2.32e-8	
28-Apr-15	AC89945	086	<8.3e-9	<2.0e-9	<2.1e-9	<2.1e-9	<2.0e-9	<4.0e-9	<3.0e-9	<2.7e-9	<2.0e-9	<2.0e-9	<4.4e-9	<3.6e-9	6.5e-9	
26-May-15	AC93529	086	<7.1e-9	<1.6e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.3e-9	<2.6e-9	<2.2e-9	<1.6e-9	<1.7e-9	<3.6e-9	<2.8e-9	1.58e-8	
26-May-15	AC93530	085	<9.0e-9	<2.1e-9	<2.2e-9	<2.0e-9	<2.2e-9	<4.2e-9	<3.1e-9	<3.1e-9	<2.0e-9	<2.2e-9	<4.2e-9	<3.5e-9	1.88e-8	
30-Jun-15	AC98111	086	<8.1e-9	<1.7e-9	<1.7e-9	<1.7e-9	<1.9e-9	<3.4e-9	<3.1e-9	<2.5e-9	<1.5e-9	<1.8e-9	<3.5e-9	<3.0e-9	1.19e-8	
30-Jun-15	AC98112	085	<9.7e-9	<2.2e-9	<2.1e-9	<1.9e-9	<2.1e-9	<4.5e-9	<3.7e-9	<3.7e-9	<2.1e-9	<2.2e-9	<4.6e-9	<3.6e-9	1.15e-8	
28-Jul-15	AD01383	086	<6.8e-9	<1.6e-9	<1.7e-9	<1.7e-9	<1.9e-9	<3.1e-9	<2.5e-9	<2.2e-9	<1.6e-9	<1.7e-9	<3.5e-9	<2.8e-9		
28-Jul-15	AD01384	085	<8.2e-9	<2.1e-9	<2.1e-9	<2.0e-9	<2.2e-9	<4.1e-9	<3.0e-9	<3.0e-9	<2.1e-9	<2.0e-9	<4.4e-9	<3.3e-9	1.82e-8	
25-Aug-15	AD05011	086	<7.9e-9	<1.6e-9	<1.7e-9	<1.7e-9	<1.9e-9	<3.3e-9	<3.2e-9	<2.4e-9	<1.6e-9	<1.8e-9	<3.4e-9	<2.9e-9	7.7e-9	
25-Aug-15	AD05012	085	<1.1e-8	<2.1e-9	<2.0e-9	<2.1e-9	<2.0e-9	<4.5e-9	<3.8e-9	<3.6e-9	<2.1e-9	<2.2e-9	<4.4e-9	<3.6e-9	2.04e-8	
29-Sep-15	AD09192	086	<7.3e-9	<1.6e-9	<1.7e-9	<1.9e-9	<2.0e-9	<3.2e-9	<2.6e-9	<2.2e-9	<1.6e-9	<1.9e-9	<3.9e-9	<3.0e-9	8.4e-9	
29-Sep-15	AD09193	085	<8.4e-9	<2.1e-9	<2.1e-9	<2.1e-9	<2.2e-9	<4.2e-9	<3.0e-9	<2.8e-9	<2.1e-9	<2.2e-9	<4.4e-9	<3.7e-9	1.49e-8	
27-Oct-15	AD12070	085	<6.7e-9	<1.6e-9	<1.7e-9	<1.7e-9	<1.8e-9	<3.0e-9	<2.3e-9	<1.9e-9	<1.6e-9	<1.7e-9	<3.6e-9	<2.8e-9	1.60e-8	
27-Oct-15	AD12071	086	<8.0e-9	<2.1e-9	<2.1e-9	<1.9e-9	<2.0e-9	<4.0e-9	<2.6e-9	<2.9e-9	<2.0e-9	<2.0e-9	<4.3e-9	<3.5e-9	7.3e-9	
24-Nov-15	AD14624	086	<9.7e-9	<1.7e-9	<1.7e-9	<1.7e-9	<1.9e-9	<3.3e-9	<3.9e-9	<2.6e-9	<2.6e-9	<2.0e-9	<3.6e-9	<3.1e-9	5.9e-9	
24-Nov-15	AD14625	085	<1.1e-8	<2.2e-9	<2.1e-9	<2.1e-9	<2.3e-9	<4.3e-9	<4.7e-9	<3.6e-9	<2.1e-9	<2.4e-9	<4.9e-9	<4.0e-9	1.92e-8	
29-Dec-15	AD17139	086	<6.8e-9	<1.6e-9	<1.6e-9	<1.7e-9	<1.9e-9	<3.0e-9	<2.3e-9	<1.9e-9	<1.6e-9	<1.8e-9	<3.4e-9	<2.7e-9	9.2e-9	
29-Dec-15	AD17140	085	<8.1e-9	<2.0e-9	<2.1e-9	<2.1e-9	<2.3e-9	<4.3e-9	<2.8e-9	<2.8e-9	<2.1e-9	<2.3e-9	<4.5e-9	<3.5e-9	2.20e-8	

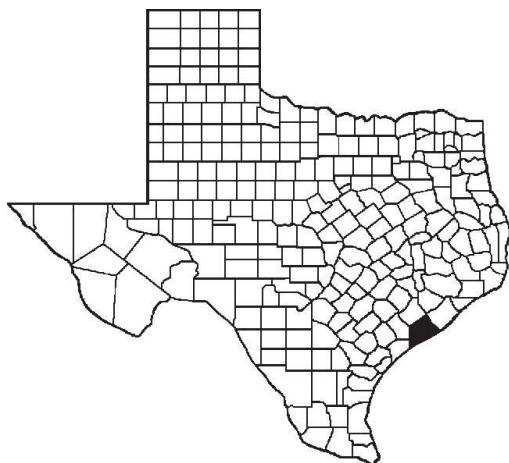
NOTE: * indicates the analysis was by alpha spectrometry, or Ra-226, analysis by radon emanation.

**Indicates the tritium (H-3) analysis for food product, sediment, and vegetation is reported in $\mu\text{Ci}/\text{ml}$

Radiation Branch Site No. 012

The South Texas Project (STP) is a commercial nuclear power plant operated by STP Nuclear Operating Company and is located 89 miles southwest of Houston and 14 miles south-southwest of Bay City. Two 1250 megawatt (electric) Westinghouse pressurized water nuclear reactors are in operation at the site. Unit 1 became operational in August of 1988 and Unit 2 in June of 1989.

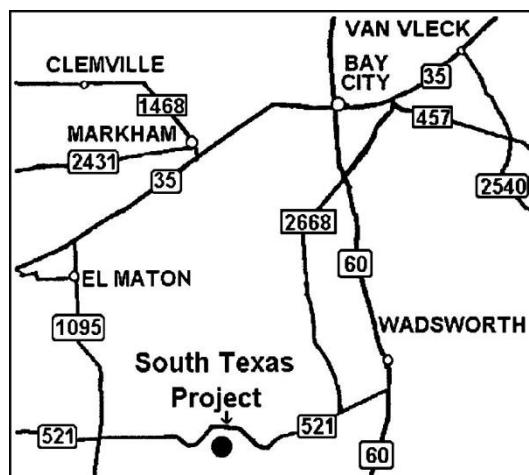
STP Nuclear Operating Company is owned by NRG Energy, Austin Energy, and City Public Service of San Antonio. STP Nuclear Operating Company manages and operates the plant for its owners, who share its energy in proportion to their ownership interest. The Radiation Branch surveillance program consists of OSL monitoring and sampling air, fish, food products, sediment, vegetation, and water.



Shaded location of Matagorda County

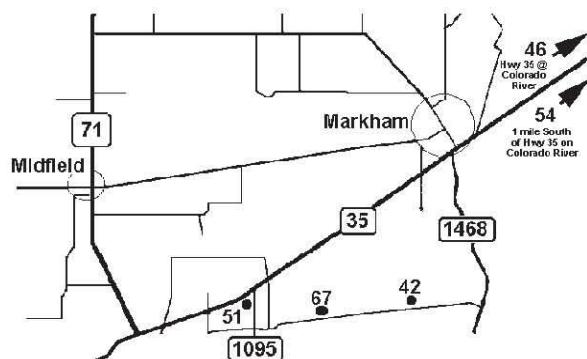
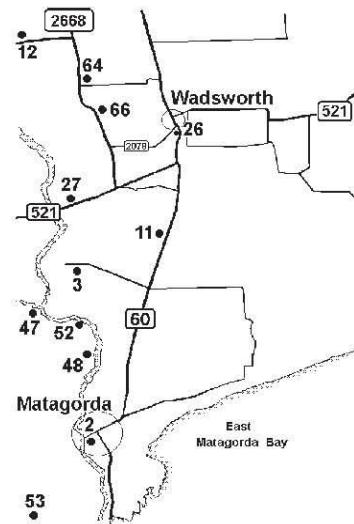
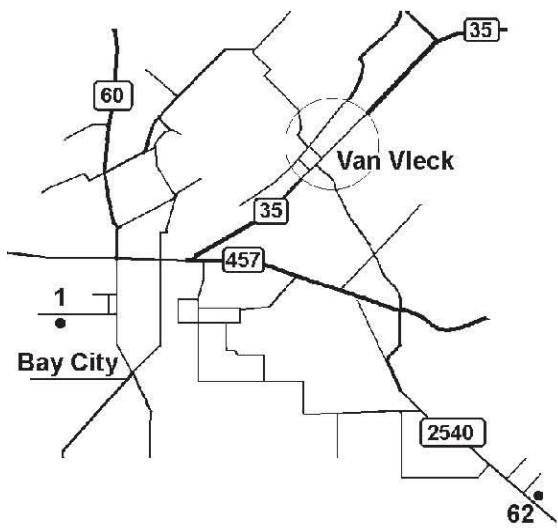
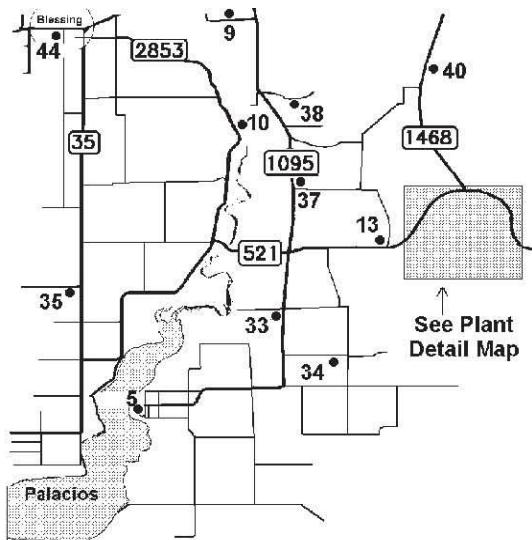
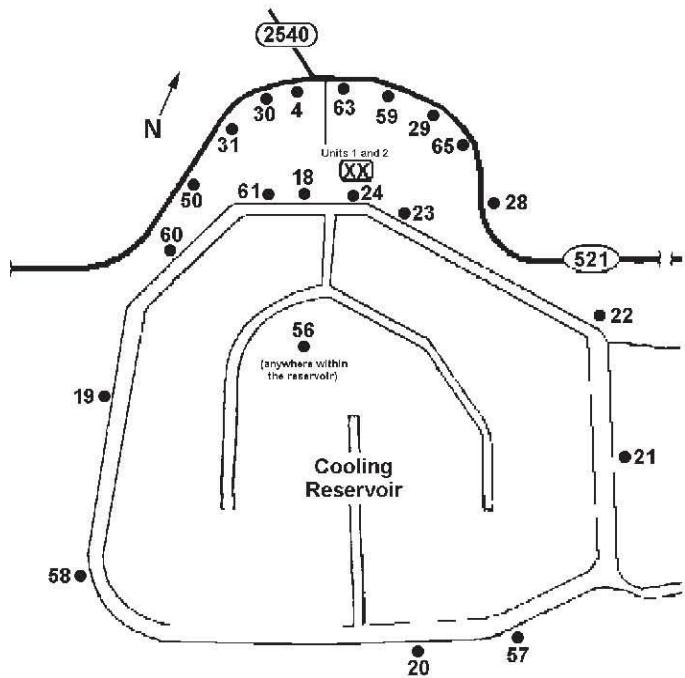


area indicates



**South Texas Project
Monitoring Station Locations**

Note: Sample type not indicated on maps.



South Texas Project
Optically Stimulated Luminescence (OSL) Monitoring Results

¹(quarterly and annual readings are in mrem)

OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL) MONITORING RESULTS¹

(QUARTERLY AND ANNUAL READING ARE IN MREM)

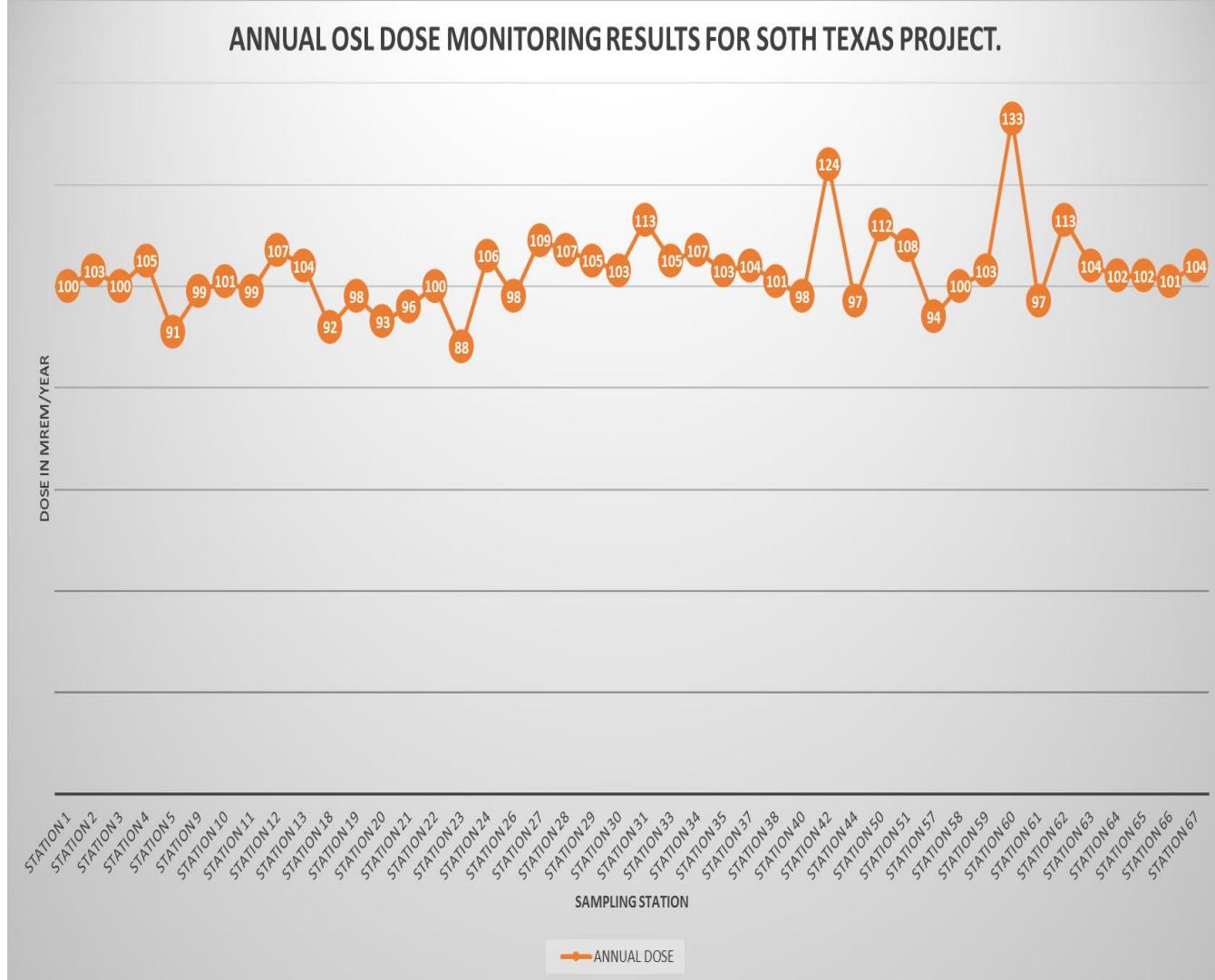
	Q1	Q2	Q3	Q4	ANNUAL DOSE	NOTES
STATION 1	25	23	26	26	100	
STATION 2	25	25	26	27	103	
STATION 3	25	23	26	26	100	
STATION 4	26	26	26	27	105	
STATION 5	23	22	21	25	91	
STATION 9	23	24	25	27	99	
STATION 10	24	24	*	28	101	² <i>Q3-OSL Missing</i>
STATION 11	24	23	26	26	99	
STATION 12	25	26	27	29	107	
STATION 13	26	24	26	28	104	
STATION 18	22	22	24	24	92	
STATION 19	24	22	26	26	98	
STATION 20	24	22	22	25	93	
STATION 21	22	23	24	27	96	
STATION 22	24	23	26	27	100	
STATION 23	*	21	22	23	88	² <i>Q1-OSL Missing</i>
STATION 24	24	26	27	29	106	
STATION 26	23	23	27	25	98	
STATION 27	26	27	*	29	109	² <i>Q3-OSL Missing</i>
STATION 28	25	26	27	29	107	
STATION 29	25	26	27	27	105	
STATION 30	25	24	27	27	103	
STATION 31	27	28	28	30	113	
STATION 33	26	25	27	27	105	
STATION 34	25	25	27	30	107	
STATION 35	25	24	25	29	103	
STATION 37	*	25	26	27	104	² <i>Q1-OSL Missing</i>
STATION 38	23	23	27	28	101	
STATION 40	23	23	25	27	98	
STATION 42	29	29	31	35	124	
STATION 44	23	22	25	27	97	
STATION 50	27	26	29	30	112	
STATION 51	*	26	27	28	108	² <i>Q1-OSL Missing</i>
STATION 57	22	22	24	26	94	
STATION 58	24	23	25	28	100	
STATION 59	27	24	26	26	103	
STATION 60	26	23	56	28	133	
STATION 61	23	23	27	24	97	
STATION 62	28	25	29	31	113	
STATION 63	25	26	26	27	104	
STATION 64	24	26	24	28	102	
STATION 65	24	24	26	28	102	
STATION 66	24	24	26	27	101	
STATION 67	26	25	26	27	104	

NOTE: Background is not subtracted from the data.

If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data.

*South Texas Project.t
Annual Dose Reading by Sampling Stations.*

ANNUAL OSL DOSE MONITORING RESULTS FOR SOTH TEXAS PROJECT.



South Texas Project
Environmental Sample Results

Air Iodine			I-131	Air Particulate			Beta
Date	Lab No	Station		Date	Lab No	Station	
06-Jan-15	AC76019	035	<5.0e-15	06-Jan-15	AC76018	035	2.51e-14
06-Jan-15	AC76021	030	<5.5e-15	06-Jan-15	AC76020	030	2.57e-14
13-Jan-15	AC76338	035	<5.0e-15	13-Jan-15	AC76337	035	2.96e-14
13-Jan-15	AC76340	030	<4.9e-15	13-Jan-15	AC76339	030	2.87e-14
21-Jan-15	AC77432	035	<4.3e-15	21-Jan-15	AC77431	035	4.48e-14
21-Jan-15	AC77434	030	<4.7e-15	21-Jan-15	AC77433	030	4.91e-14
27-Jan-15	AC78292	035	<6.0e-15	27-Jan-15	AC78291	035	2.53e-14
27-Jan-15	AC78294	030	<6.2e-15	27-Jan-15	AC78293	030	2.48e-14
04-Feb-15	AC79555	035	<4.7e-15	04-Feb-15	AC79554	035	2.52e-14
04-Feb-15	AC79557	030	<4.7e-15	04-Feb-15	AC79556	030	2.72e-14
10-Feb-15	AC80290	035	<6.2e-15	10-Feb-15	AC80289	035	2.75e-14
10-Feb-15	AC80292	030	<6.7e-15	10-Feb-15	AC80291	030	2.58e-14
17-Feb-15	AC81044	035	<5.3e-15	17-Feb-15	AC81043	035	2.83e-14
17-Feb-15	AC81046	030	<5.4e-15	17-Feb-15	AC81045	030	2.85e-14
24-Feb-15	AC81966	035	<5.6e-15	24-Feb-15	AC81965	035	1.85e-14
24-Feb-15	AC81968	030	<5.6e-15	24-Feb-15	AC81967	030	1.87e-14
03-Mar-15	AC83080	035	<5.9e-15	03-Mar-15	AC83079	035	2.35e-14
03-Mar-15	AC83082	030	<5.2e-15	03-Mar-15	AC83081	030	2.31e-14
10-Mar-15	AC83916	035	<2.9e-15	10-Mar-15	AC83915	035	1.57e-14
10-Mar-15	AC83918	030	<5.2e-15	10-Mar-15	AC83917	030	1.58e-14
17-Mar-15	AC84859	035	<4.8e-15	17-Mar-15	AC84858	035	1.50e-14
17-Mar-15	AC84861	030	<5.2e-15	17-Mar-15	AC84860	030	1.59e-14
24-Mar-15	AC86434	035	<6.0e-15	24-Mar-15	AC86433	035	1.21e-14
24-Mar-15	AC86436	030	<5.0e-15	24-Mar-15	AC86435	030	1.22e-14
31-Mar-15	AC87284	035	<6.1e-15	31-Mar-15	AC87283	035	1.65e-14
31-Mar-15	AC87286	030	<5.0e-15	31-Mar-15	AC87285	030	1.68e-14
07-Apr-15	AC87599	035	<5.3e-15	07-Apr-15	AC87598	035	1.97e-14
07-Apr-15	AC87601	030	<5.0e-15	07-Apr-15	AC87600	030	2.06e-14
15-Apr-15	AC88643	035	<5.1e-15	15-Apr-15	AC88642	035	1.53e-14
15-Apr-15	AC88645	030	<4.5e-15	15-Apr-15	AC88644	030	1.60e-14
21-Apr-15	AC89514	035	<8.9e-15	21-Apr-15	AC89513	035	1.25e-14
21-Apr-15	AC89516	030	<7.6e-15	21-Apr-15	AC89515	030	1.32e-14
28-Apr-15	AC89941	035	<6.1e-15	28-Apr-15	AC89940	035	1.85e-14
28-Apr-15	AC89943	030	<5.3e-15	28-Apr-15	AC89942	030	1.91e-14
06-May-15	AC91151	035	<4.8e-15	06-May-15	AC91150	035	1.98e-14
06-May-15	AC91153	030	<4.2e-15	06-May-15	AC91152	030	1.99e-14
12-May-15	AC91914	035	<6.7e-15	12-May-15	AC91913	035	2.64e-14
12-May-15	AC91916	030	<5.4e-15	12-May-15	AC91915	030	2.77e-14
19-May-15	AC92881	035	<6.1e-15	19-May-15	AC92880	035	1.96e-14
19-May-15	AC92883	030	<5.1e-15	19-May-15	AC92882	030	2.16e-14
27-May-15	AC93776	035	<4.9e-15	27-May-15	AC93775	035	1.64e-14
27-May-15	AC93778	030	<4.1e-15	27-May-15	AC93777	030	1.59e-14
02-Jun-15	AC94488	035	<6.3e-15	02-Jun-15	AC94487	035	1.94e-14
02-Jun-15	AC94490	030	<5.4e-15	02-Jun-15	AC94489	030	1.87e-14
09-Jun-15	AC95530	035	<5.5e-15	07-Jul-15	AC98890	035	1.98e-14
09-Jun-15	AC95532	030	<4.7e-15	07-Jul-15	AC98892	030	2.12e-14
17-Jun-15	AC96621	035	<4.9e-15	14-Jul-15	AC99510	035	2.43e-14
17-Jun-15	AC96623	030	<4.2e-15	14-Jul-15	AC99512	030	2.48e-14
23-Jun-15	AC97115	035	<6.9e-15	21-Jul-15	AD00688	035	1.87e-14
23-Jun-15	AC97117	030	<5.7e-15	21-Jul-15	AD00690	030	1.96e-14
30-Jun-15	AC98104	035	<6.2e-15	28-Jul-15	AD02197	035	2.36e-14
30-Jun-15	AC98106	030	<5.4e-15	28-Jul-15	AD02199	030	2.16e-14

**South Texas Project
Environmental Sample Results**

Air Iodine			I-131	Air Particulate			Beta
Date	Lab No	Station		Date	Lab No	Station	
07-Jul-15	AC98891	035	<5.6e-15	04-Aug-15	AD02478	035	2.94e-14

07-Jul-15	AC98893	030	<4.5e-15	04-Aug-15	AD02480	030	2.98e-14
14-Jul-15	AC99511	035	<5.8e-15	09-Jun-15	AC95529	035	2.18e-14
14-Jul-15	AC99513	030	<5.2e-15	09-Jun-15	AC95531	030	2.12e-14
21-Jul-15	AD00689	035	<5.8e-15	17-Jun-15	AC96620	035	1.250e-14
21-Jul-15	AD00691	030	<4.9e-15	17-Jun-15	AC96622	030	1.220e-14
28-Jul-15	AD02198	035	<8.6e-15	23-Jun-15	AC97114	035	2.61e-14
28-Jul-15	AD02200	030	<7.3e-15	23-Jun-15	AC97116	030	2.68e-14
04-Aug-15	AD02479	035	<5.6e-15	30-Jun-15	AC98103	035	1.86e-14
05-Aug-15	AD02481	030	<4.9e-15	30-Jun-15	AC98105	030	1.81e-14
11-Aug-15	AD03978	035	<6.1e-15	07-Jul-15	AC98890	035	1.98e-14
12-Aug-15	AD03980	030	<5.3e-15	11-Aug-15	AD03977	035	2.13e-14
18-Aug-15	AD04982	035	<8.6e-15	11-Aug-15	AD03979	030	2.20e-14
18-Aug-15	AD04984	030	<7.4e-15	18-Aug-15	AD04981	035	2.47e-14
25-Aug-15	AD05014	035	<5.9e-15	18-Aug-15	AD04983	030	2.67e-14
25-Aug-15	AD05016	030	<3.0e-6	25-Aug-15	AD05013	035	1.43e-14
02-Sep-15	AD05714	035	<4.8e-15	25-Aug-15	AD05015	030	4.88e-6
02-Sep-15	AD05716	030	<4.9e-15	02-Sep-15	AD05713	035	2.52e-14
08-Sep-15	AD06376	035	<6.9e-15	02-Sep-15	AD05715	030	2.26e-14
08-Sep-15	AD06378	030	<4.3e-15	08-Sep-15	AD06375	035	1.38e-14
15-Sep-15	AD07192	035	<4.3e-15	08-Sep-15	AD06377	030	1.54e-14
15-Sep-15	AD07194	030	<2.9e-15	15-Sep-15	AD07191	035	1.86e-14
22-Sep-15	AD08355	035	<5.6e-15	15-Sep-15	AD07193	030	1.84e-14
22-Sep-15	AD08357	030	<4.3e-15	22-Sep-15	AD08354	035	2.43e-14
29-Sep-15	AD09181	035	<5.5e-15	22-Sep-15	AD08356	030	2.39e-14
29-Sep-15	AD09183	030	<5.0e-15	29-Sep-15	AD09180	035	3.46e-14
06-Oct-15	AD09661	035	<3.2e-15	29-Sep-15	AD09182	030	3.47e-14
06-Oct-15	AD09663	030	<3.4e-15	06-Oct-15	AD09660	035	2.80e-14
13-Oct-15	AD10703	035	<5.3e-15	06-Oct-15	AD09662	030	2.53e-14
13-Oct-15	AD10705	030	<4.6e-15	13-Oct-15	AD10702	035	3.36e-14
20-Oct-15	AD11371	035	<4.7e-15	13-Oct-15	AD10704	030	3.27e-14
20-Oct-15	AD11373	030	<3.2e-15	20-Oct-15	AD11370	035	2.92e-14
28-Oct-15	AD12081	035	<6.6e-15	20-Oct-15	AD11372	030	2.84e-14
28-Oct-15	AD12083	030	<6.9e-15	28-Oct-15	AD12080	035	1.61e-14
03-Nov-15	AD12464	035	<8.8e-15	28-Oct-15	AD12082	030	1.68e-14
03-Nov-15	AD12466	030	<9.2e-15	03-Nov-15	AD12463	035	2.81e-14
11-Nov-15	AD13318	035	<6.6e-15	03-Nov-15	AD12465	030	2.85e-14
11-Nov-15	AD13465	030	<4.8e-15	11-Nov-15	AD13317	035	2.00e-14
17-Nov-15	AD13925	035	<3.2e-15	11-Nov-15	AD13464	030	1.77e-14
17-Nov-15	AD13927	030	<5.8e-15	17-Nov-15	AD13924	035	2.26e-14
24-Nov-15	AD14616	035	<3.2e-15	17-Nov-15	AD13926	030	2.37e-14
24-Nov-15	AD14618	030	<3.1e-15	24-Nov-15	AD14615	035	2.31e-14
01-Dec-15	AD16061	035	<1.3e-14	24-Nov-15	AD14617	030	2.24e-14
01-Dec-15	AD16063	030	<1.1e-14	01-Dec-15	AD16060	035	1.20e-14
08-Dec-15	AD16075	035	<5.1e-15	01-Dec-15	AD16062	030	1.070e-14
08-Dec-15	AD16077	030	<3.5e-15	08-Dec-15	AD16074	035	3.29e-14
15-Dec-15	AD17054	030	<3.4e-15	08-Dec-15	AD16076	030	3.47e-14
22-Dec-15	AD17098	035	<6.8e-15	15-Dec-15	AD17051	035	1.98e-14
22-Dec-15	AD17100	030	<5.4e-15	15-Dec-15	AD17053	030	2.09e-14
29-Dec-15	AD17142	035	<5.0e-15	22-Dec-15	AD17097	035	2.30e-14
29-Dec-15	AD17144	030	<7.6e-15	22-Dec-15	AD17099	030	2.41e-14
29-Dec-15	AD17143	030	1.53e-14	29-Dec-15	AD17141	035	1.67e-14

South Texas Project

Environmental Sample Results

Air Particulate Composite uCi/ml

Date	Lab No	Station	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
16-Jan-15	AC76040	35	<9.2e-6	<2.7e-6	<3.1e-6	<3.1e-6	<3.2e-6	<5.4e-6	<2.8e-6	<3.2e-6	<2.7e-6	<2.9e-6	<6.6e-6	<4.6e-6
17-Jan-15	AC76039	30	<9.4e-6	<2.6e-6	<3.1e-6	<2.5e-6	<2.9e-6	<5.5e-6	<2.6e-6	<3.2e-6	<2.6e-6	<2.5e-6	<6.4e-6	<4.4e-6
13-Apr-15	AC87876	30	<6.4e-6	<1.9e-6	<2.5e-6	<1.8e-6	<1.9e-6	<4.2e-6	<1.7e-6	<3.0e-6	<2.0e-6	<1.9e-6	<5.3e-6	<3.3e-6
13-Apr-15	AC87877	35	<5.9e-6	<2.0e-6	<2.6e-6	<1.6e-6	<2.0e-6	<4.1e-6	<1.6e-6	<2.8e-6	<1.9e-6	<1.9e-6	<5.1e-6	<3.1e-6
27-Jul-15	AD00943	30	<9.4e-6	<2.7e-6	<3.1e-6	<2.9e-6	<3.3e-6	<5.2e-6	<2.7e-6	<3.4e-6	<2.7e-6	<2.7e-6	<6.3e-6	<4.6e-6
27-Jul-15	AD00944	35	<8.0e-6	<2.4e-6	<2.8e-6	<2.4e-6	<2.7e-6	<4.7e-6	<2.3e-6	<3.1e-6	<2.8e-6	<2.5e-6	<5.9e-6	<4.1e-6
26-Oct-15	AD11612	30	<8.8e-6	<2.7e-6	<3.1e-6	<2.9e-6	<3.0e-6	<5.5e-6	<2.8e-6	<3.4e-6	<2.7e-6	<2.8e-6	<6.5e-6	<4.6e-6
26-Nov-15	AD11613	35	<8.7e-6	<2.3e-6	<2.6e-6	<2.5e-6	<2.5e-6	<5.0e-6	<2.4e-6	<3.1e-6	<2.5e-6	<2.3e-6	<6.3e-6	<4.3e-6

Fish uCi/g

Date	Lab No	Station	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	K-40	La-140	Mn-54	Nb-95	Zn-65	Zr-95
18-Apr-15	AC89784	053	<5.3e-8	<9.0e-9	<9.7e-9	<8.2e-9	<8.4e-9	<2.1e-8	<2.1e-8	2.54e-6	<1.7e-8	<8.5e-9	<1.1e-8	<2.2e-8	<1.6e-8
15-Dec-15	AD17069	053	<6.9e-8	<1.3e-8	<1.5e-8	<1.4e-8	<1.5e-8	<2.7e-8	<2.7e-8	4.2e-7	<2.2e-8	<1.3e-8	<1.5e-8	<2.9e-8	<2.4e-8

Food Product uCi/g

24-Mar-15	AC86437	035	<3.4e-8	<7.1e-9	<7.5e-9	<6.8e-9	<7.4e-9	<1.7e-8	<1.3e-8	4.23e-6	<9.1e-9	<6.7e-9	<7.4e-9	<1.7e-8	<1.3e-8
24-Mar-15	AC86438	063	<5.4e-8	<1.2e-8	<1.3e-8	<9.9e-9	<1.2e-8	<2.7e-8	<1.9e-8	5.09e-6	<1.6e-8	<1.1e-8	<1.3e-8	<2.9e-8	<2.0e-8
24-Jun-15	AC97568	063	<6.1e-8	<1.4e-8	<1.5e-8	<1.3e-8	<1.4e-8	<3.2e-8	<2.2e-8	3.93e-6	<1.9e-8	<1.3e-8	<1.5e-8	<3.3e-8	<2.3e-8
29-Sep-15	AD09184	035	<4.2e-8	<8.8e-9	<9.4e-9	<8.8e-9	<9.7e-9	<2.0e-8	<1.6e-8	4.76e-6	<1.2e-8	<8.7e-9	<9.3e-9	<2.4e-8	<1.6e-8
29-Sep-15	AD09185	030	<5.7e-8	<1.3e-8	<1.3e-8	<1.2e-8	<1.2e-8	<2.8e-8	<2.1e-8	5.09e-6	<1.8e-8	<1.3e-8	<1.3e-8	<3.2e-8	<2.2e-8
23-Nov-15	AD14491	035	<5.1e-8	<8.6e-9	<8.9e-9	<7.9e-9	<8.8e-9	<2.0e-8	<2.1e-8	3.23e-6	<1.3e-8	<8.4e-9	<9.9e-9	<1.9e-8	<1.5e-8
23-Nov-15	AD14492	030	<5.1e-8	<9.8e-9	<1.1e-8	<9.0e-9	<9.8e-9	<2.3e-8	<2.4e-8	3.75e-6	<1.8e-8	<9.6e-9	<1.2e-8	<2.4e-8	<1.9e-8

Sediment uCi/g

19-Mar-15	AC85454	052	<6.2e-7	<1.5e-7	<1.3e-7	<1.4e-7	<1.5e-7	<2.9e-7	<2.3e-7	1.11e-5	<2.1e-7	<1.3e-7	<1.8e-7	<3.9e-7	<2.6e-7
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Vegetation for Milk uCi/g

24-Jun-15	AC97567	035	<6.1e-8	<1.5e-8	<1.6e-8	<1.4e-8	<1.4e-8	<3.2e-8	<2.2e-8	4.94e-6	<2.0e-8	<1.5e-8	<1.5e-8	<3.7e-8	<2.5e-8
27-Jan-15	AC78295	030	<3.2e-8	<7.3e-9	<8.3e-9	<6.8e-9	<7.1e-9	<1.8e-8	<1.2e-8	3.65e-6	<1.0e-8	<7.4e-9	<8.0e-9	<2.0e-8	<1.3e-8
17-Feb-15	AC81047	063	<2.8e-8	<8.1e-9	<8.4e-9	<7.1e-9	<7.6e-9	<1.8e-8	<8.8e-9	3.07e-6	<8.9e-9	<7.8e-9	<7.9e-9	<1.9e-8	<1.3e-8
17-Mar-15	AC84862	063	<3.8e-8	<9.3e-9	<1.1e-8	<8.7e-9	<9.4e-9	<2.3e-8	<1.2e-8	5.80e-6	<1.1e-8	<1.1e-8	<1.1e-8	<2.6e-8	<1.7e-8
15-Apr-15	AC88646	030	<2.7e-8	<6.2e-9	<7.1e-9	<6.5e-9	<7.0e-9	<1.6e-8	<9.4e-9	4.33e-6	<7.7e-9	<6.2e-9	<6.6e-9	<1.7e-8	<1.2e-8
12-May-15	AC91918	030	<4.8e-8	<9.4e-9	<9.9e-9	<7.9e-9	<8.5e-9	<2.5e-8	<2.0e-8	6.03e-6	<1.4e-8	<9.0e-9	<1.1e-8	<2.4e-8	<1.6e-8
23-Jun-15	AC97118	030	<3.5e-8	<9.7e-9	<1.1e-8	<8.4e-9	<9.8e-9	<2.4e-8	<1.2e-8	6.37e-6	<1.0e-8	<9.6e-9	<9.6e-9	<2.7e-8	<1.7e-8
21-Jul-15	AD00692	030	<3.4e-8	<7.4e-9	<7.9e-9	<6.8e-9	<7.3e-9	<1.9e-8	<1.3e-8	3.48e-6	<9.9e-9	<7.5e-9	<8.0e-9	<1.9e-8	<1.4e-8
25-Aug-15	AD05017	030	<4.6e-8	<1.0e-8	<1.1e-8	<9.0e-9	<9.3e-9	<2.4e-8	<1.7e-8	4.98e-6	<1.3e-8	<9.3e-9	<1.1e-8	<2.6e-8	<1.7e-8
22-Sep-15	AD08358	004	<2.9e-8	<7.2e-9	<8.2e-9	<7.2e-9	<7.7e-9	<1.8e-8	<9.3e-9	7.27e-6	<7.7e-9	<7.2e-9	<7.7e-9	<2.1e-8	<1.4e-8
28-Oct-15	AD12084	004	<2.7e-8	<6.0e-9	<6.9e-9	<5.7e-9	<6.4e-9	<1.5e-8	<9.5e-9	5.57e-6	<7.1e-9	<6.0e-9	<6.2e-9	<1.7e-8	<1.1e-8
23-Nov-15	AD14493	004	<4.7e-8	<7.5e-9	<7.5e-9	<6.2e-9	<6.9e-9	<1.9e-8	<2.2e-8	6.94e-6	<1.2e-8	<7.0e-9	<8.5e-9	<1.9e-8	<1.3e-8
14-Dec-15	AD17055	004	<3.0e-8	<7.3e-9	<7.8e-9	<7.0e-9	<7.6e-9	<1.7e-8	<1.1e-8	5.28e-6	<7.6e-9	<6.8e-9	<7.6e-9	<1.9e-8	<1.3e-8

**South Texas Project
Environmental Sample Results**

Water Composite uCi/ml H3

Date Lab No Station

03-Feb-15	AC76042	52	<1.0e-6
03-Feb-15	AC76041	54	<1.0e-6
13-Apr-15	AC87878	54	<1.0e-6
13-Apr-15	AC87879	52	<1.0e-6
27-Jul-15	AD00937	46	<1.0e-6
27-Jul-15	AD00938	52	<1.0e-6
26-Oct-15	AD11614	54	<1.0e-6
26-Oct-15	AD11615	52	<1.0e-6

Water Surface uCi/ml

Ba-140 Co-58 Co-60 Cs-134 Cs-137 Fe-59 I-131 K-40 La-140 Mn-54 Nb-95 Zn-65 Zr-95 Beta

Date Lab No Station

20-Jan-15	AC77435	052	<7.2e-9	<1.6e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.0e-9	<2.4e-9	3.2e-8	<2.0e-9	<1.6e-9	<1.7e-9	<3.6e-9	<2.8e-9	4.9e-8
21-Jan-15	AC77436	054	<7.4e-9	<1.7e-9	<1.7e-9	<1.7e-9	<1.9e-9	<3.3e-9	<2.8e-9		<2.5e-9	<1.7e-9	<1.8e-9	<3.6e-9	<2.8e-9	8.80e-9
17-Feb-15	AC81048	054	<6.7e-9	<1.5e-9	<1.6e-9	<1.7e-9	<1.9e-9	<3.0e-9	<2.3e-9		<2.0e-9	<1.6e-9	<1.7e-9	<3.6e-9	<2.8e-9	6.36e-9
19-Feb-15	AC81537	052	<8.0e-9	<1.7e-9	<1.8e-9	<1.9e-9	<1.9e-9	<3.2e-9	<2.9e-9	3.9e-8	<2.5e-9	<1.6e-9	<1.8e-9	<3.9e-9	<3.1e-9	2.8e-8
10-Mar-15	AC83919	054	<9.7e-9	<2.2e-9	<2.2e-9	<2.0e-9	<2.3e-9	<4.7e-9	<3.8e-9	3.8e-8	<3.4e-9	<2.1e-9	<2.2e-9	<4.6e-9	<3.5e-9	5.63e-9
19-Mar-15	AC85453	052	<8.0e-9	<1.7e-9	<1.6e-9	<1.8e-9	<1.9e-9	<3.4e-9	<3.1e-9	3.6e-8	<2.5e-9	<1.6e-9	<1.9e-9	<3.6e-9	<3.0e-9	2.78e-8
10-Apr-15	AC88027	046	<9.3e-9	<2.1e-9	<2.3e-9	<2.0e-9	<2.2e-9	<4.1e-9	<3.3e-9		<3.1e-9	<2.0e-9	<2.2e-9	<4.7e-9	<3.6e-9	5.6e-9
22-Apr-15	AC89507	052	<6.4e-9	<1.6e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.1e-9	<2.3e-9		<2.0e-9	<1.6e-9	<1.7e-9	<3.6e-9	<2.6e-9	1.36e-8
12-May-15	AC91917	046	<6.6e-9	<1.6e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.1e-9	<2.4e-9		<2.1e-9	<1.6e-9	<1.7e-9	<3.9e-9	<2.8e-9	9.0e-9
20-May-15	AC93172	052	<8.1e-9	<1.6e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.3e-9	<3.1e-9		<2.5e-9	<1.6e-9	<1.9e-9	<3.8e-9	<2.9e-9	8.9e-9
09-Jun-15	AC95533	046	<8.1e-9	<1.7e-9	<1.7e-9	<1.8e-9	<2.0e-9	<3.3e-9	<3.1e-9		<2.6e-9	<1.6e-9	<1.8e-9	<3.7e-9	<3.0e-9	5.8e-9
10-Jun-15	AC95528	052	<7.7e-9	<2.0e-9	<2.2e-9	<2.0e-9	<2.2e-9	<4.3e-9	<2.7e-9		<2.7e-9	<2.2e-9	<2.1e-9	<4.5e-9	<3.3e-9	5.11e-8
14-Jul-15	AC99509	054	<8.2e-9	<2.0e-9	<2.1e-9	<1.9e-9	<2.1e-9	<4.0e-9	<2.8e-9		<2.8e-9	<2.1e-9	<2.1e-9	<4.3e-9	<3.4e-9	6.4e-9
16-Jul-15	AD00261	052	<7.9e-9	<1.6e-9	<1.6e-9	<1.7e-9	<1.9e-9	<3.3e-9	<3.2e-9		<2.6e-9	<1.7e-9	<1.8e-9	<3.6e-9	<2.8e-9	9.4e-9
11-Aug-15	AD03981	054	<6.9e-9	<1.6e-9	<1.7e-9	<1.8e-9	<1.8e-9	<3.1e-9	<2.4e-9		<2.1e-9	<1.5e-9	<1.7e-9	<3.4e-9	<2.9e-9	5.20e-9
12-Aug-15	AD04191	052	<7.6e-9	<2.0e-9	<2.0e-9	<2.0e-9	<2.0e-9	<3.9e-9	<2.6e-9		<2.8e-9	<2.1e-9	<2.2e-9	<4.2e-9	<3.5e-9	2.97e-8
15-Sep-15	AD07654	054	<6.9e-9	<1.6e-9	<1.7e-9	<1.7e-9	<1.9e-9	<3.1e-9	<2.4e-9		<2.0e-9	<1.6e-9	<1.7e-9	<3.5e-9	<2.9e-9	5.80e-9
17-Sep-15	AD07683	052	<7.8e-9	<1.7e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.2e-9	<2.8e-9		<2.3e-9	<1.7e-9	<1.8e-9	<3.6e-9	<2.9e-9	1.40e-8
06-Oct-15	AD09664	052	<6.7e-9	<1.6e-9	<1.7e-9	<1.7e-9	<1.9e-9	<3.2e-9	<2.2e-9	6.5e-8	<2.1e-9	<1.6e-9	<1.7e-9	<3.3e-9	<2.9e-9	9.0e-8
20-Oct-15	AD11374	054	<6.6e-9	<1.5e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.1e-9	<2.3e-9		<1.9e-9	<1.6e-9	<1.7e-9	<3.6e-9	<2.8e-9	5.7e-9
16-Nov-15	AD13932	052	<8.4e-9	<2.1e-9	<2.2e-9	<1.9e-9	<2.3e-9	<4.0e-9	<3.1e-9	6.8e-8	<2.9e-9	<2.0e-9	<2.2e-9	<4.5e-9	<3.6e-9	8.0e-8
24-Nov-15	AD14619	046	<9.7e-9	<2.1e-9	<2.1e-9	<2.2e-9	<2.3e-9	<4.6e-9	<4.3e-9		<3.5e-9	<2.1e-9	<2.4e-9	<4.6e-9	<3.8e-9	7.0e-9
15-Dec-15	AD17056	054	<6.7e-9	<1.7e-9	<1.7e-9	<1.8e-9	<1.8e-9	<3.2e-9	<2.3e-9		<1.8e-9	<1.7e-9	<1.8e-9	<3.5e-9	<2.8e-9	5.35e-9
16-Dec-15	AD17057	047	<7.3e-9	<2.0e-9	<2.1e-9	<2.0e-9	<2.3e-9	<3.9e-9	<2.6e-9		<2.5e-9	<2.0e-9	<2.0e-9	<4.4e-9	<3.6e-9	1.02e-8

NOTE: * indicates the analysis was by alpha spectrometry, or Ra-226, analysis by radon emanation.

**Indicates the tritium (H-3) analysis for food product, sediment, and vegetation is reported in $\mu\text{Ci}/\text{ml}$

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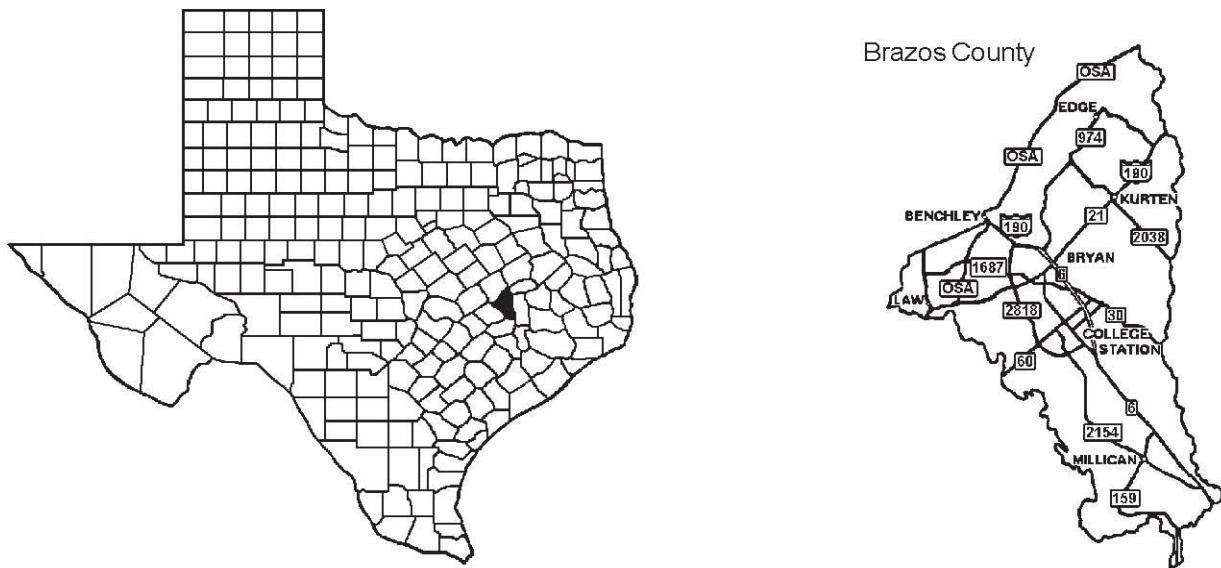
Research Reactors

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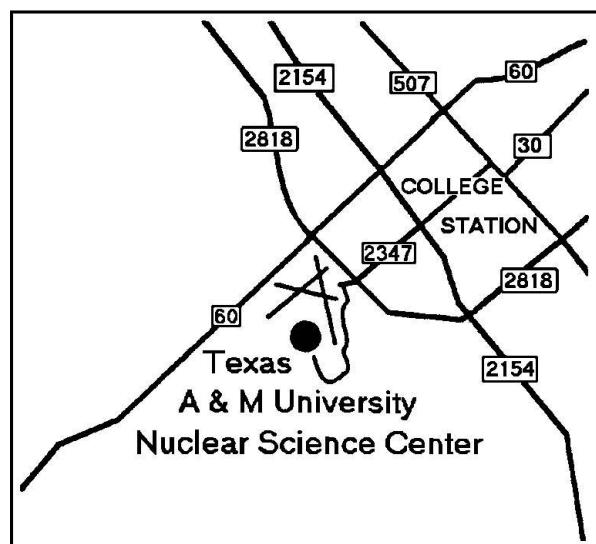
Texas A & M University Nuclear Science Center

Radiation Branch Site No. 001

Texas A&M Nuclear Science Center (NSC) is located seven miles south of downtown Bryan just south of Easterwood Airport. NSC houses a one-megawatt TRIGA (Testing, Research, Isotope Production, and General Atomics) research reactor that came online in 1961. The Radiation Branch surveillance program consists of OSL monitoring.



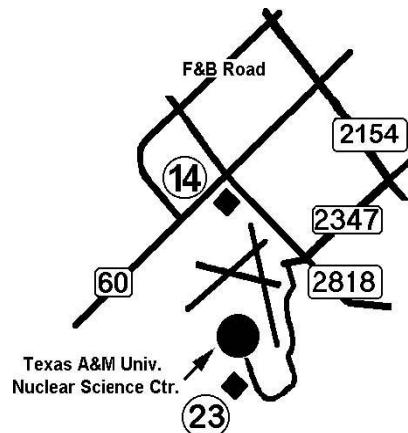
Shaded area indicates location of Brazos County



**Texas A & M University Nuclear Science Center
Monitoring Station Locations**

◆ TLD Station	♥ Sample Station	♣ TLD & Sample Station
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Homeland Security -Diagram Removed



**Texas A & M Nuclear Science Center
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

***OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL) MONITORING RESULTS¹
(QUARTERLY AND ANNUAL READINGS ARE IN MREM)***

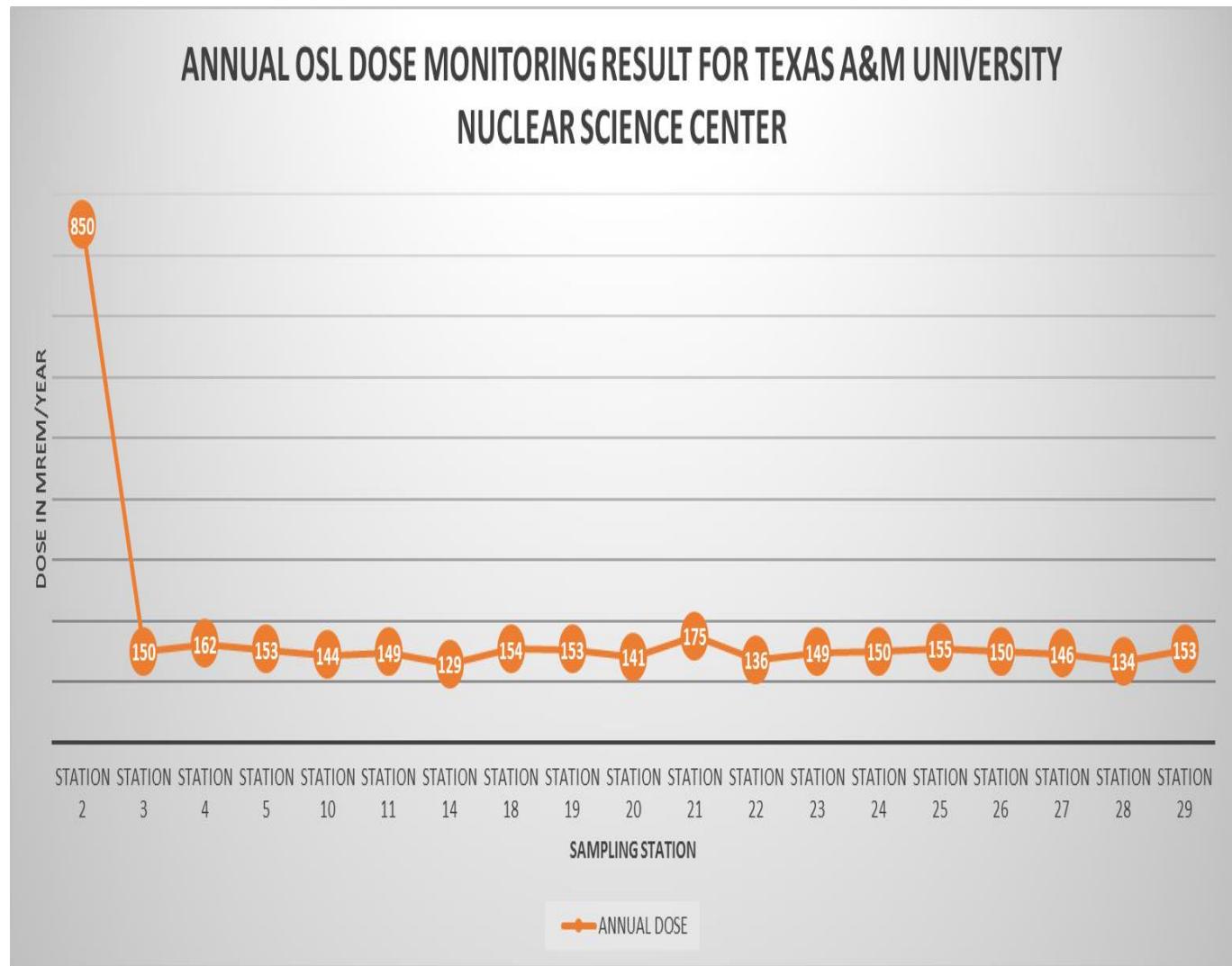
	Q1	Q2	Q3	Q4	ANNUAL DOSE	NOTES
STATION 2	29	86	580	155	850	
STATION 3	26	37	37	50	150	
STATION 4	30	41	41	50	162	
STATION 5	28	39	37	49	153	
STATION 10	25	38	34	47	144	
STATION 11	27	39	35	48	149	
STATION 14	23	34	*	46	129	¹ Background; ² Q3-OSL Missing
STATION 18	25	41	36	52	154	
STATION 19	29	40	37	47	153	
STATION 20	22	38	36	45	141	
STATION 21	36	57	34	48	175	
STATION 22	23	36	32	45	136	
STATION 23	25	40	36	48	149	¹ Background
STATION 24	26	38	39	47	150	
STATION 25	25	37	45	48	155	
STATION 26	27	40	35	48	150	
STATION 27	25	38	33	50	146	
STATION 28	24	*	35	48	134	² Q2-OSL Missing
STATION 29	26	39	38	50	153	

NOTE: ¹

Background is not subtracted from the data.

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill the missing data.

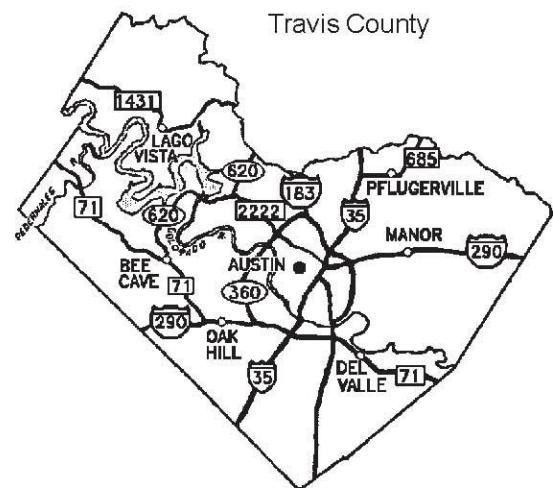
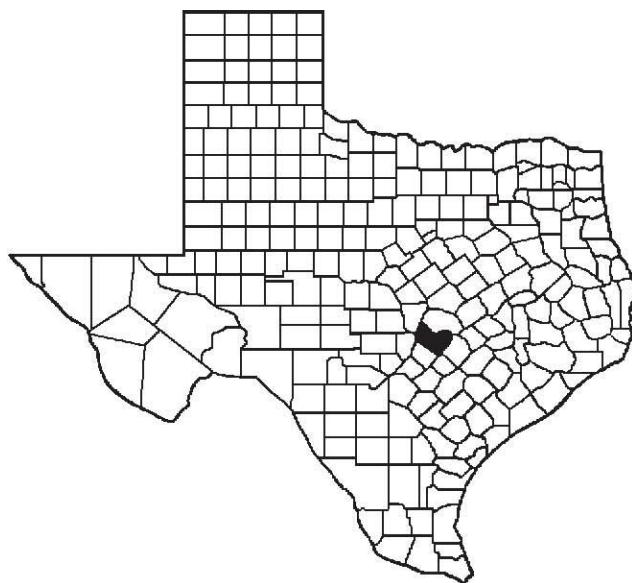
*Texas A&M University Nuclear Science Center.
Annual Dose Reading by Sampling Stations.*



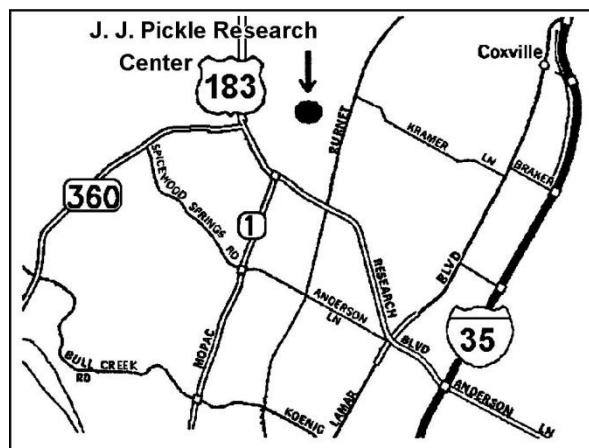
University of Texas Nuclear Engineering Teaching Laboratory

Radiation Branch Site No. 003

University of Texas Nuclear Engineering Teaching Laboratory (NETL) is located at the J. J. Pickle Research Center, approximately five miles north of the Texas Department of State Health Services main campus. NETL houses an above-ground, fixed-core 1.1 megawatt TRIGA (Testing, Research, Isotope Production, and General Atomics) research reactor that came online in 1992. The Radiation Branch surveillance program consists of sampling sewage and water and OSL monitoring.



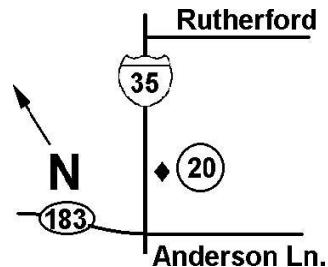
Shaded area indicates location of Travis County



University of Texas Nuclear Engineering Teaching Laboratory
Monitoring Station Locations

◆ TLD Station	♥ Sample Station	♣ TLD & Sample Station
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Homeland Security -Diagram Removed



University of Texas Nuclear Engineering Teaching Laboratory
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL) MONITORING RESULTS¹
(QUARTERLY AND ANNUAL READINGS ARE IN MREM)

	Q1	Q2	Q3	Q4	ANNUAL DOSE	NOTES
STATION 1	22	23	24	23	92	
STATION 2	23	22	25	26	96	
STATION 3	24	22	25	25	96	
STATION 4	27	25	27	27	106	
STATION 5	25	23	25	27	100	
STATION 20	24	22	24	24	94	¹ Background

NOTE: ¹Background is not subtracted from the data.

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data.

Annual Dose Reading by Sampling Stations.

ANNUAL OSL DOSE MONITORING RESULTS FOR UNIVERSITY OF TEXAS NUCLEAR ENGINEERING TEACHING LABORATORY.



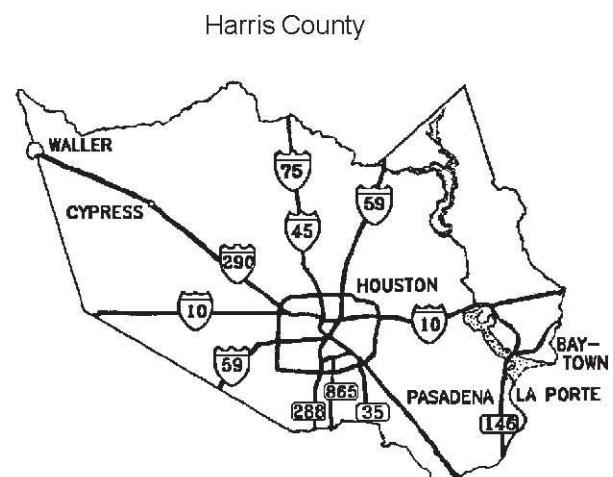
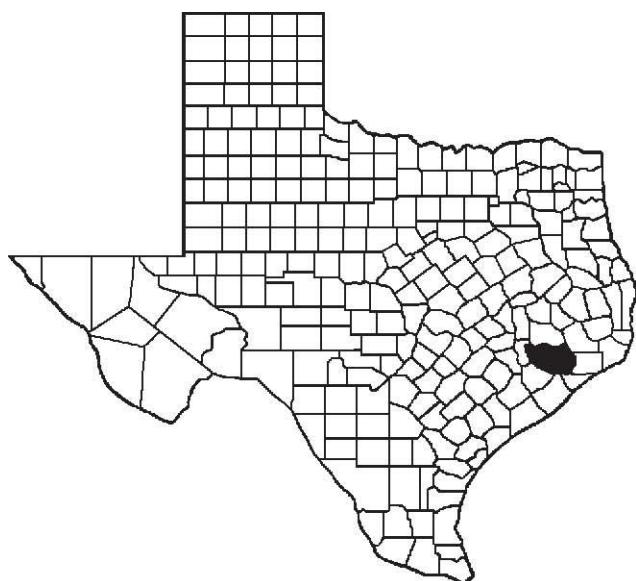
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Other Facilities

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Gammatron, Inc.
Radiation Branch Site No. 018

Gammatron, Inc. is a manufacturer of sealed radioactive sources. The facility is located in an industrial area of Houston approximately four miles northwest of William P. Hobby Airport. The Radiation Branch surveillance program consists of soil sampling and OSL monitoring.



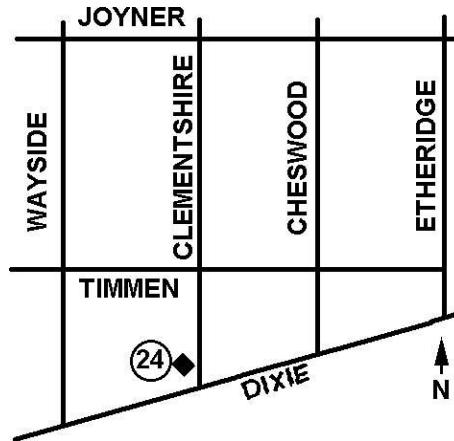
Shaded area indicates location of Harris County



Gammatron, Inc.
Monitoring Station Locations

◆ TLD Station	♥ Sample Station	♣ TLD & Sample Station
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Homeland Security -Diagram Removed



Gammatron, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
¹(quarterly and annual readings are in mrem)

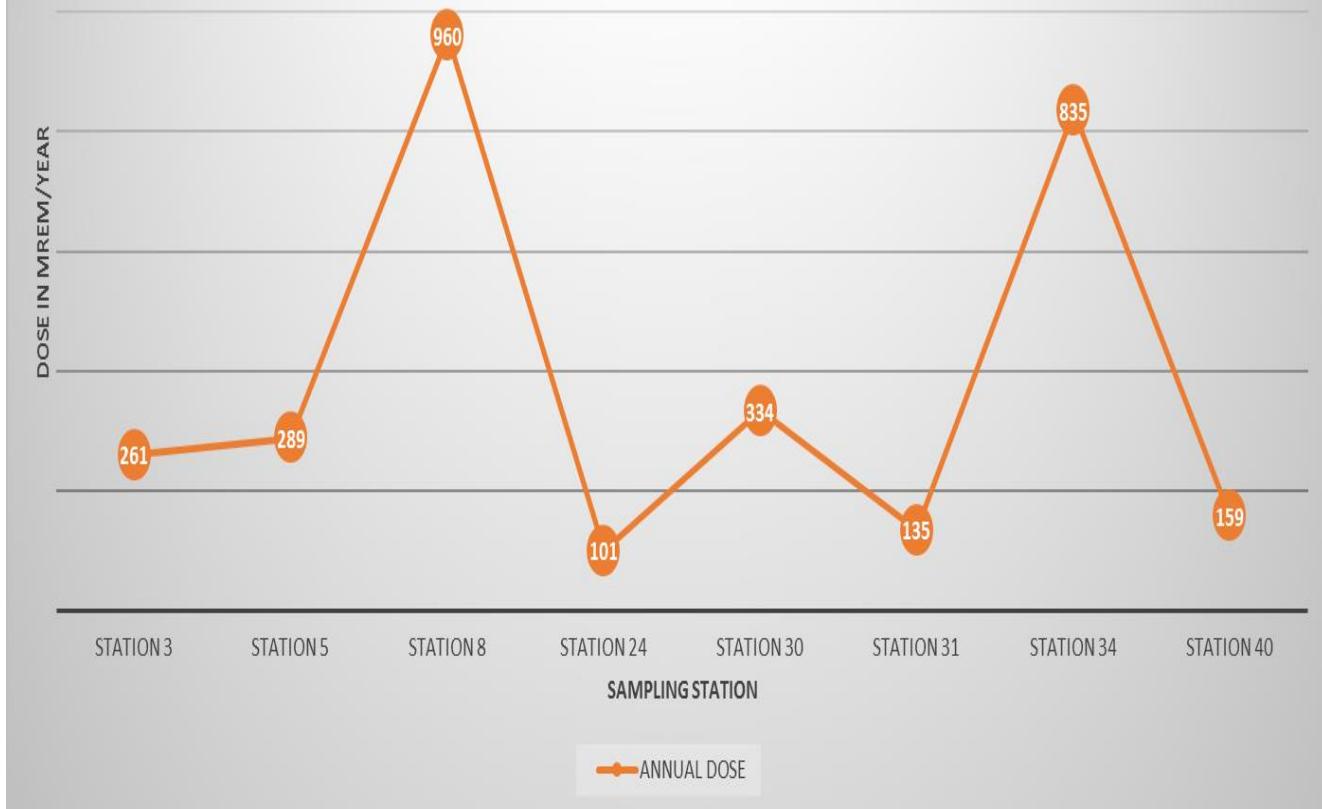
	OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL) MONITORING RESULTS¹				NOTES	
	Q1	Q2	Q3	Q4		
STATION 3	61	52	*	83	261	² Q3-OSL Missing
STATION 5	108	54		176	289	
STATION 8	254	190	247	269	960	
STATION 24	*	25	25	26	101	¹ Background ² Q1-OSL Missing
STATION 30	99	94	89	52	334	
STATION 31	32	35	33	35	135	
STATION 34	216	131	274	214	835	
STATION 40	38	39	41	41	159	

NOTE: ¹Background is not subtracted from the data.

²If data are missing during a quarter, an average of known readings for that year and location is used to fill in for the missing data.

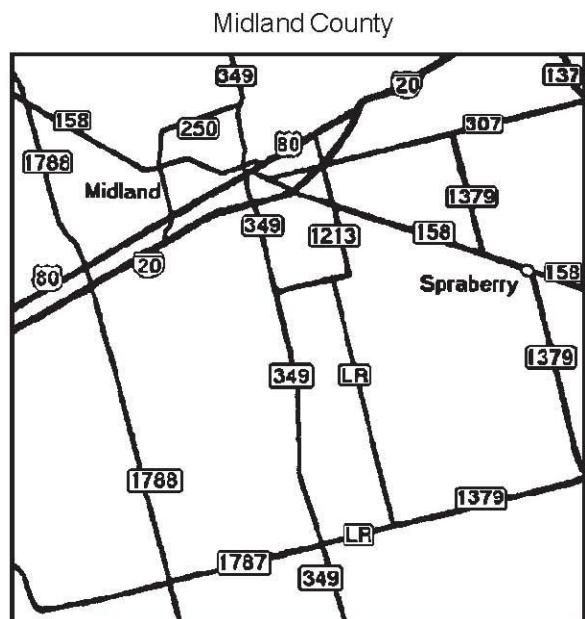
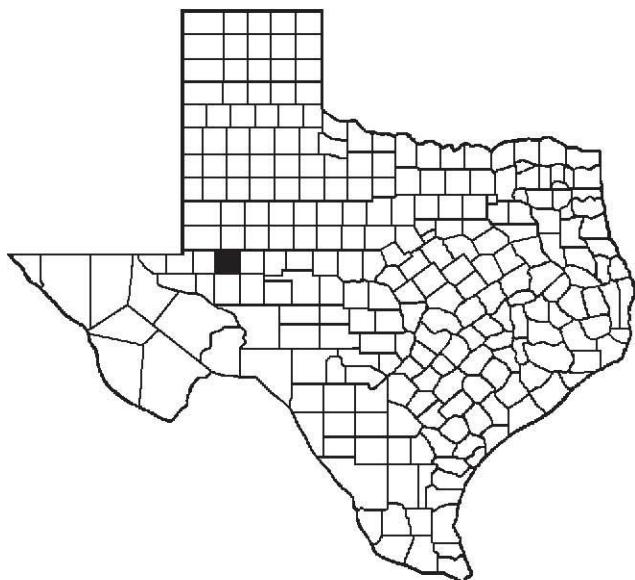
Gammatron Inc.
Annual Dose Reading by Sampling Stations.

ANNUAL OSL DOSE MONITORING RESULTS FOR GAMMATRON INC.

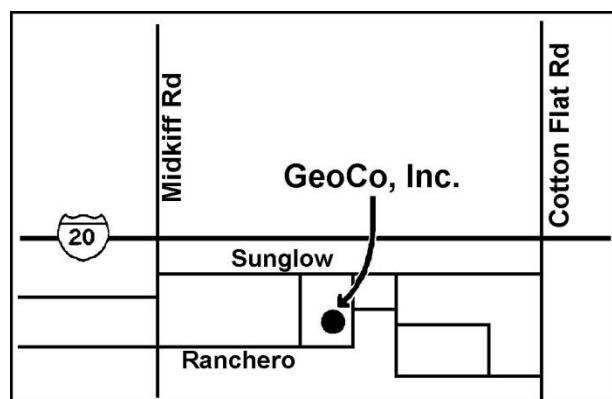


GeoCo, Inc.
Radiation Branch Site No. 051

GeoCo, Inc. is a tracer studies company specializing in oil and gas wells. The facility is located in Midland approximately six miles east of Midland-Odessa International Airport. The Radiation Branch surveillance program consists of OSL monitoring.



Shaded area indicates location of Midland County



GeoCo, Inc.
Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



GeoCo, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL) MONITORING RESULTS¹
(QUARTERLY AND ANNUAL READINGS ARE IN MREM)

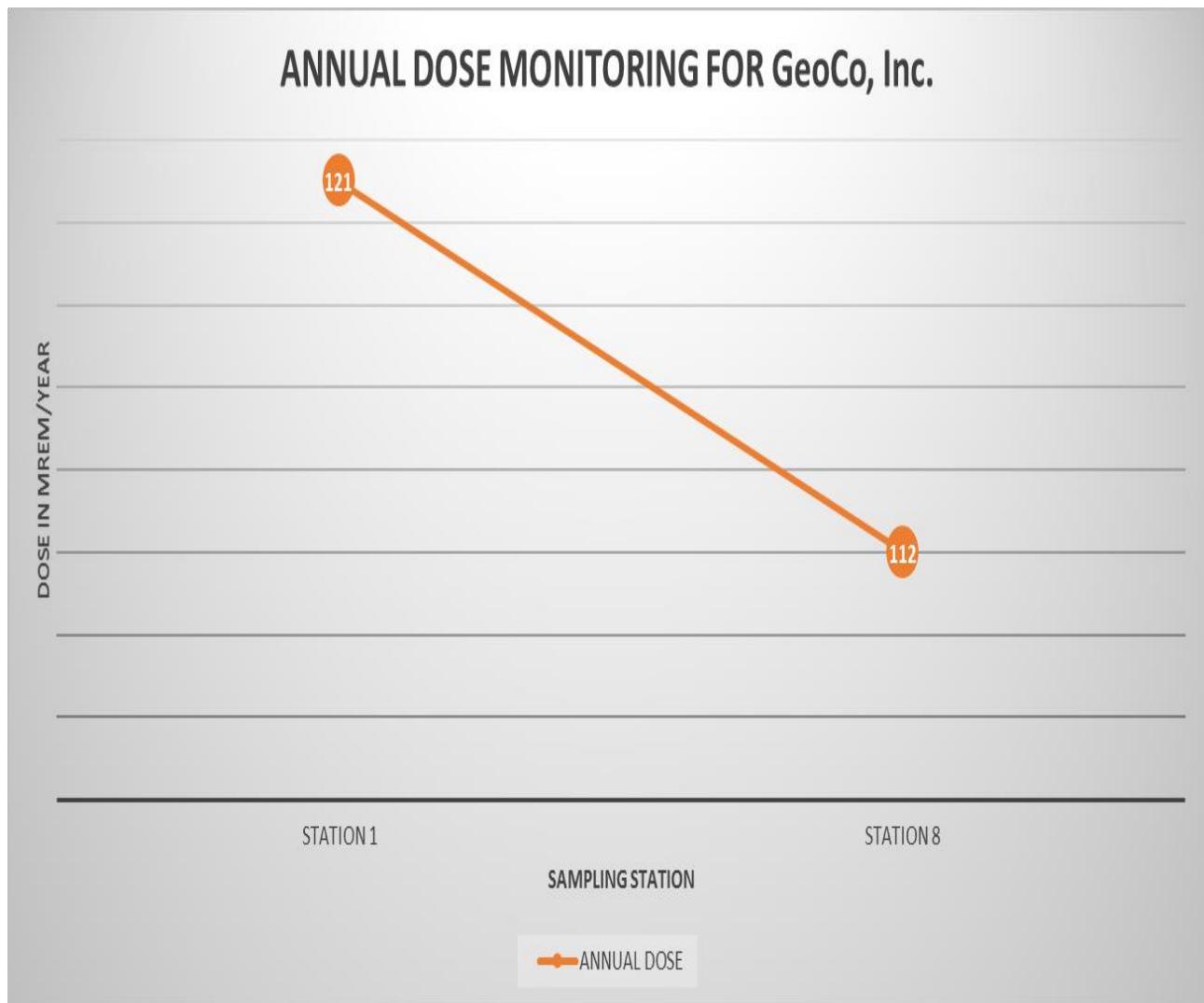
	Q1	Q2	Q3	Q4	DOSE	NOTES
STATION 1	*	29	30	32	121	² Q1-OSL Missing
STATION 8	27	27	28	30	112	¹ Background

NOTE: ¹Background is not subtracted from the data.

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data.

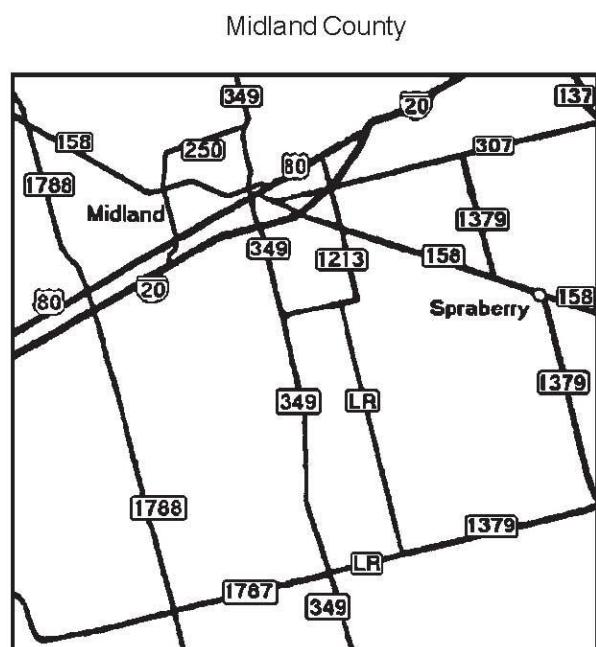
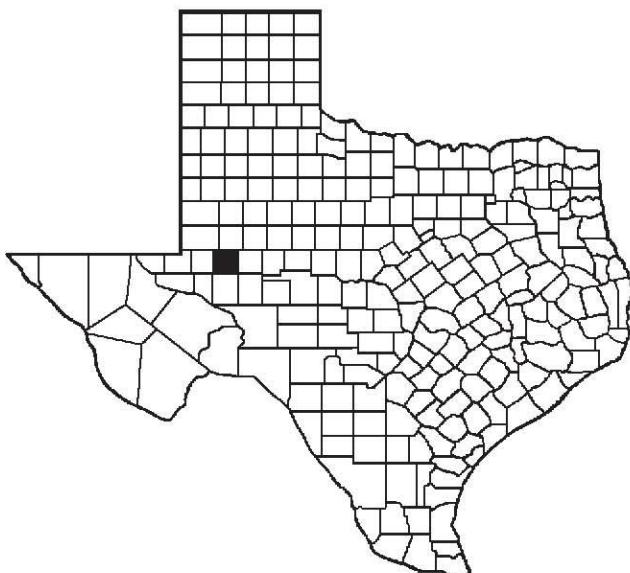
³An occupancy factor of 1/10 may be applied to this number to obtain radiation dose to members of the public.

GeoCo, Inc.
Annual Dose Results by Sampling Stations.

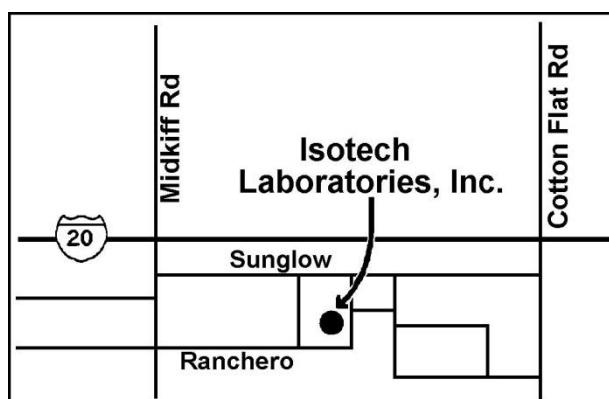


Isotech Laboratories, Inc.
Radiation Branch Site No. 008

Isotech Laboratories, Inc. manufactures tracer material for the oil and gas industry, calibrates radiation detection instruments, and provides radiation safety training for well-logging and tracer services. The facility is located in Midland approximately six miles east of Midland-Odessa International Airport. The Radiation Branch surveillance program consists of OSL monitoring.



Shaded area indicates location of Midland County



**Isotech Laboratories, Inc.
Monitoring Station Locations**

◆ TLD Station	♥ Sample Station	♣ TLD & Sample Station
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Homeland Security -Diagram Removed



Isotech Laboratories, Inc.

Optically Stimulated Luminescent Dosimeter (OSL) Monitoring Results¹

(Quarterly and Annual Readings are in mrem)

Optically	Q1	Q2	Q3	Q4	ANNUAL DOSE	NOTES	Stimulated
STATION 1	28	29	28	33	118		
STATION 2	37	43	41	55	176		
STATION 3	37	40	38	46	161		
STATION 4	40	43	45	47	175		
STATION 6	38	39	40	43	160		
STATION 8	29	27	29	29	114	¹ Background	

**Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

NOTE: ¹Background is not subtracted from the data.

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data.

³An occupancy factor of 1/4 may be applied to this number to obtain radiation dose to members of the public.

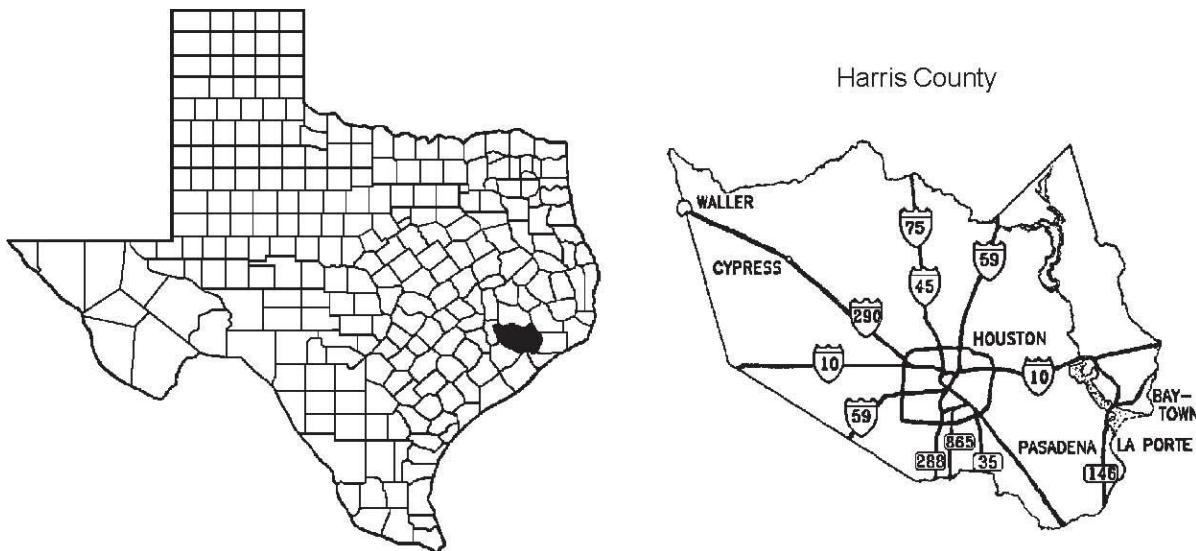
ANNUAL OSL DOSE MONITORING RESULTS FOR ISOTECH LABORATORY INC.



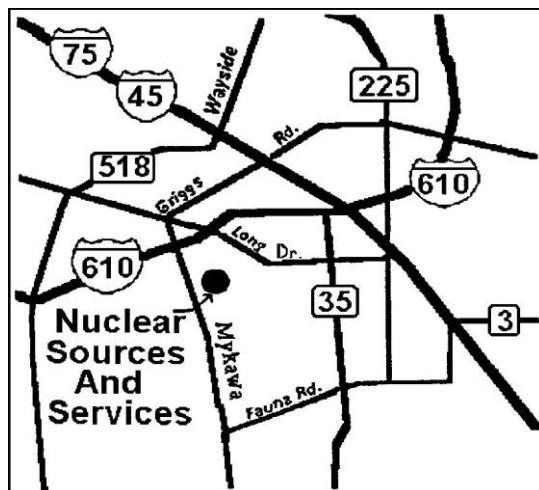
Nuclear Sources and Services, Inc.

Radiation Branch Site No. 023

The Nuclear Sources and Services, Inc. (NSSI) facility occupies approximately five acres in a light industrial area of Southeast Houston approximately four miles northwest of William P. Hobby Airport. The primary activities of NSSI currently are waste treatment, storage, and disposal of radioactive and chemical hazardous materials. NSSI receives wastes from a variety of off-site generators both inside and outside of Texas. At the conclusion of treatment or storage, the residues are shipped to permit off-site facilities for disposal. The Radiation Branch surveillance program consists of soil sampling and OSL monitoring.



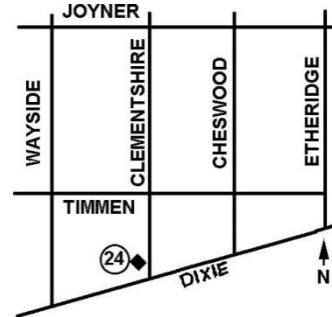
Shaded area indicates location of Harris County



Nuclear Sources and Services, Inc.
Monitoring Station Locations

♦ TLD Station	♥ Sample Station	♣ TLD & Sample Station
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Homeland Security -Diagram Removed



Nuclear Sources and Services, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL) MONITORING RESULTS¹

(QUARTERLY AND ANNUAL READINGD ARE IN MREM)

	Q1	Q2	Q3	Q4	ANNUAL DOSE	NOTES
STATION 3	24	112	113	133	382	
STATION 4	140	48	38	43	269	
STATION 6	33	65	86	36	220	
STATION 7	40	43	147	43	273	
STATION 11	26	26	30	31	113	
STATION 12	66	32	41	46	185	
STATION 16	54	32	33	67	186	
STATION 18	30	28	32	36	126	
STATION 19	32	28	33	37	130	
STATION 20	30	29	40	96	195	
STATION 21	356	300	213	380	1249	
STATION 22	25	25	27	27	104	
STATION 23	25	26	29	31	111	
STATION 24	24	25	25	26	100	¹ Background
STATION 25	99	82	99	56	336	
STATION 41	101	73	73	124	371	

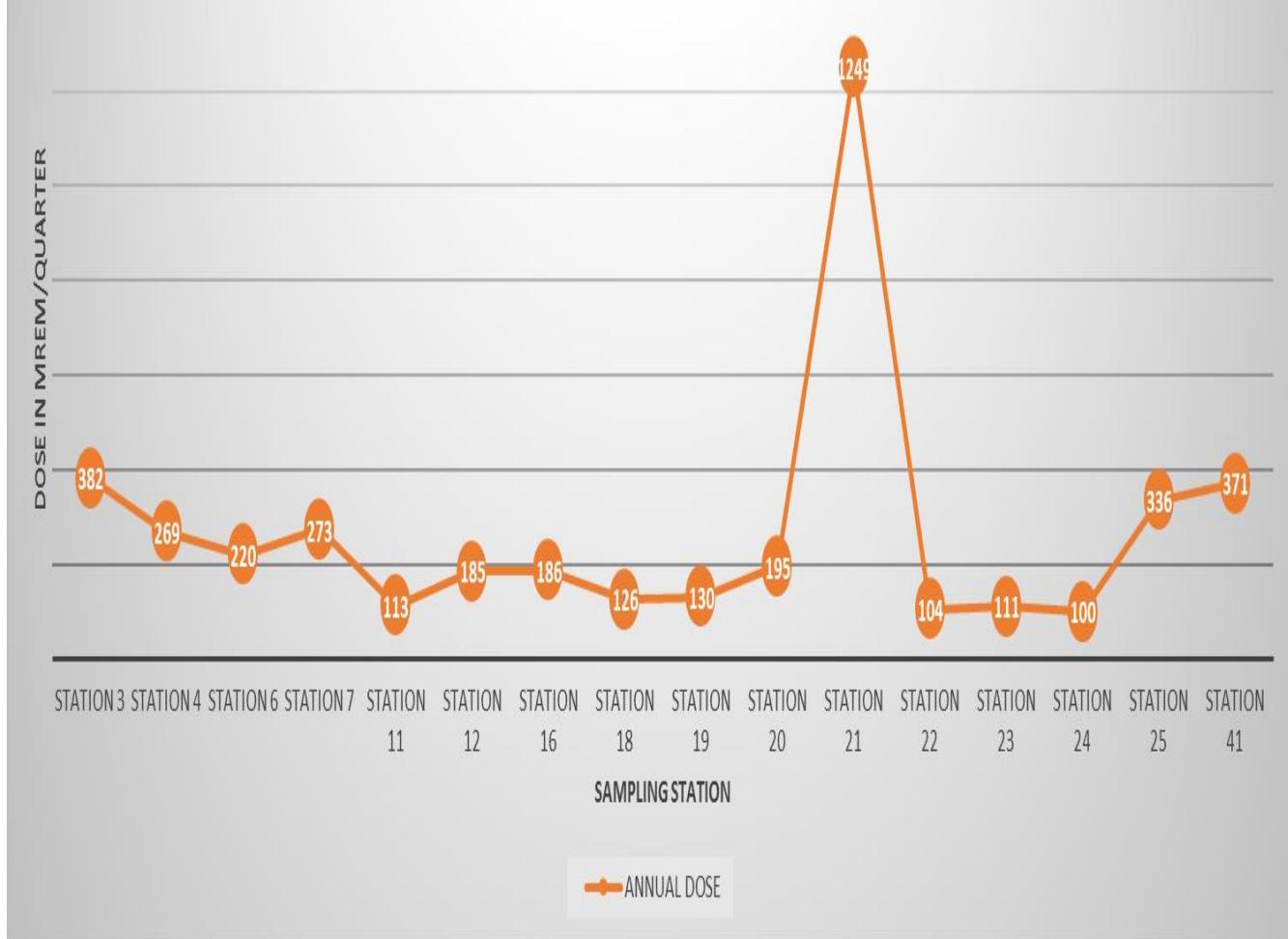
NOTE: Background is not subtracted from the data.

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data.

³An occupancy factor of 1/16 may be applied to this number to obtain radiation dose to members of the public.

Nuclear Sources and Service, Inc.
Annual Dose Reading by Sampling Stations.

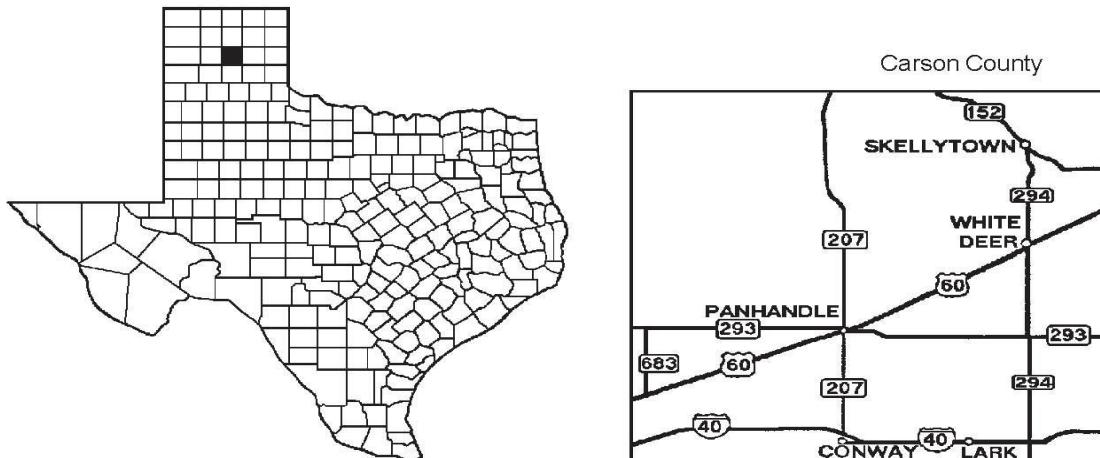
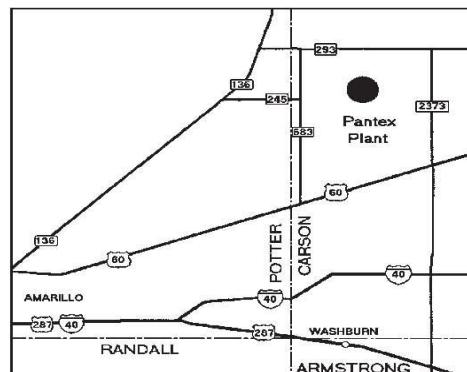
ANNUAL OSL DOSE MONITORING RESULT FOR NUCLEAR SOURCES AND SERVICES, INC.



Pantex
Radiation Branch Site No. 005

The Pantex plant site is located in Carson County in the Texas Panhandle, north of U.S. Highway 60. The plant is located 17 miles (27 kilometers) northeast of downtown Amarillo. It is centered on a 16,000-acre site. The Pantex facility consists of 11,703 acres of United States Department of Energy (USDOE) owned land and 5,800 acres of land leased from Texas Tech University used as a safety and security buffer zone. The buffer area is managed by Texas Tech Research Farm and is used as rangeland and farmland. An additional 1,080 acres northwest of the plant is called Pantex Lake. Pantex Lake was formally used as the receiving area for treated wastewater discharges, and is now managed by Texas Tech University. An additional 7,926 acres to the east of the plant is USDOE-owned and is used for agricultural purposes through a cooperative agreement.

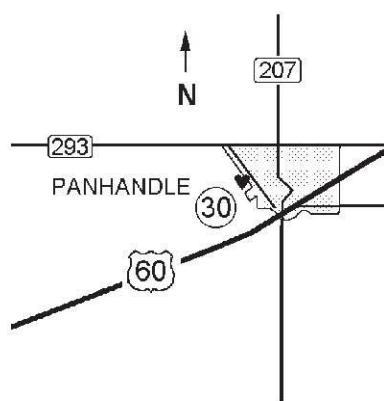
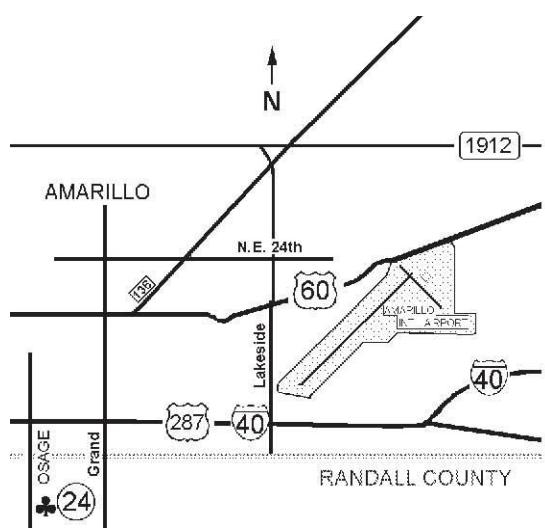
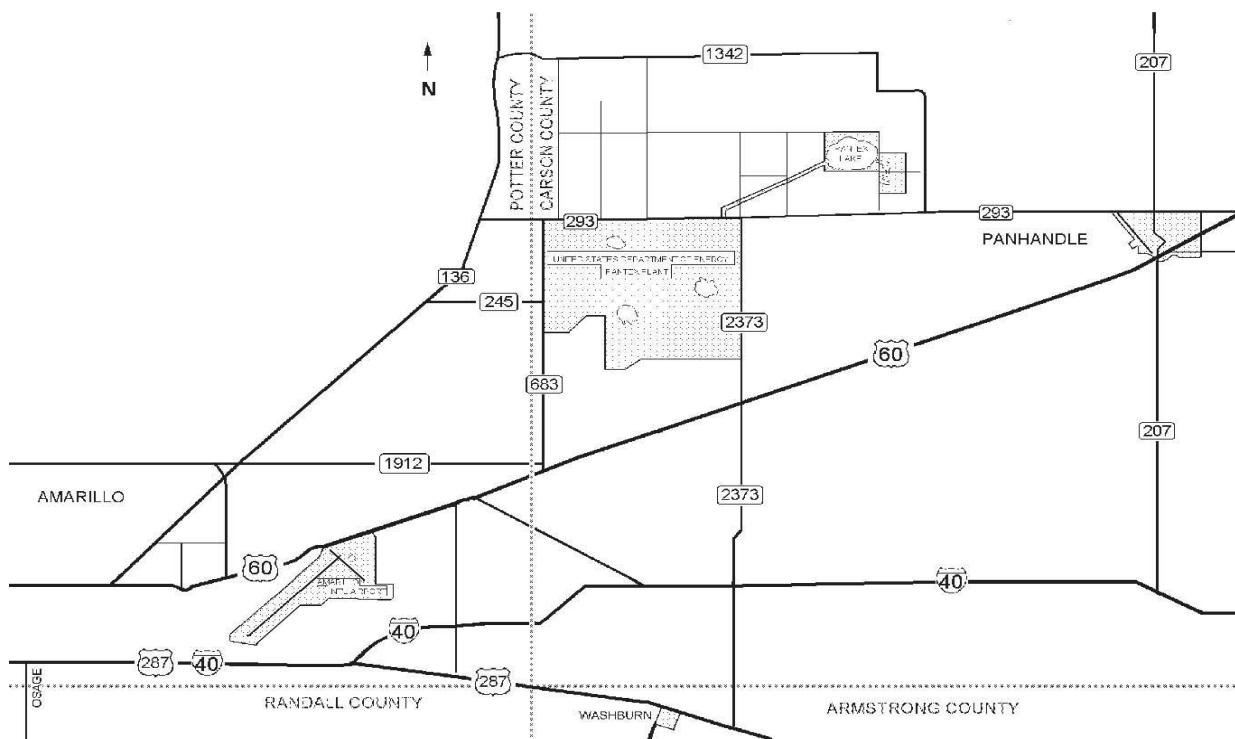
The Radiation Branch surveillance program consists of OSL monitoring and sampling air, food products, sediment, soil, vegetation, and water. Analysis of samples is performed to determine the presence of any special nuclear material.



Shaded area indicates location of Carson County

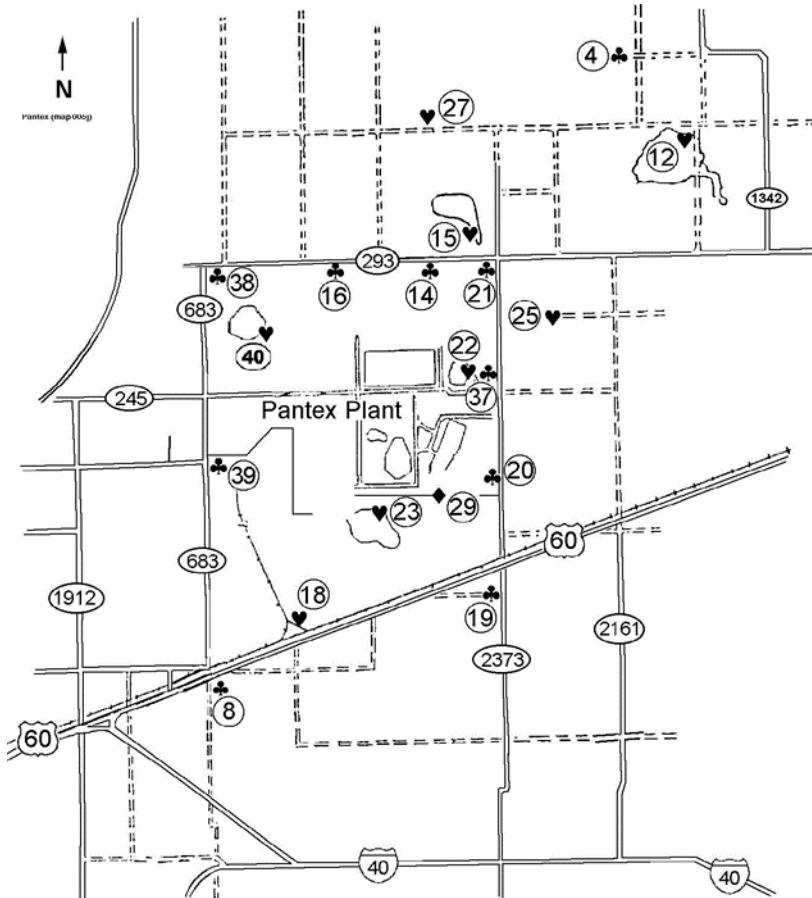
Pantex
Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♦ TLD & Sample Station



Pantex
Monitoring Station Locations

Homeland Security -Diagram Removed



Pantex
Optically Stimulated Luminescence (OSL) Monitoring Results
 (quarterly and annual readings are in mrem)

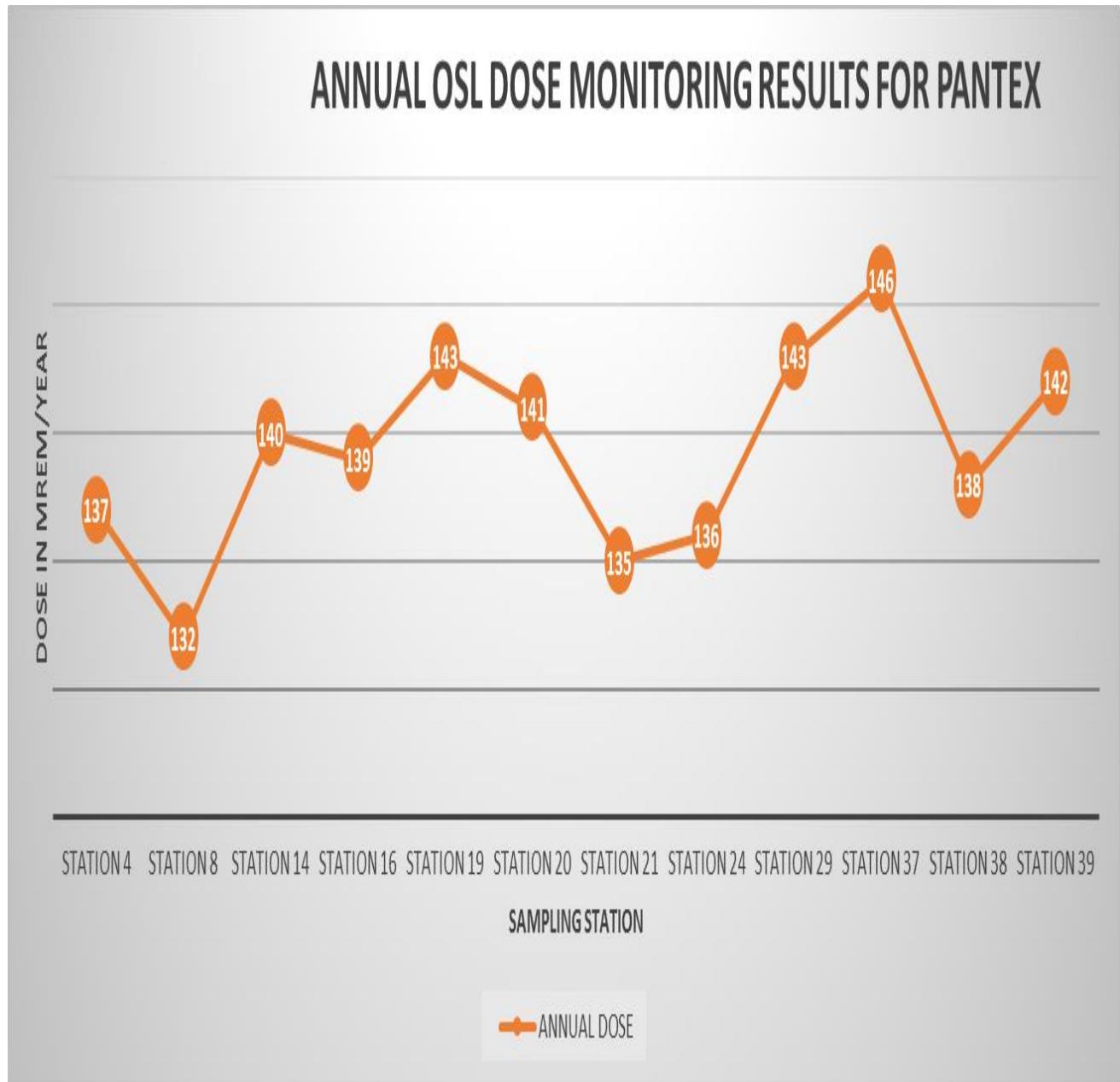
OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL) MONITORING RESULTS¹
(QUARTERLY AND ANNUAL READINGS ARE IN MREM)

	Q1	Q2	Q3	Q4	ANNUAL DOSE	NOTES
STATION 4	33	36	33	35	137	
STATION 8	34	34	31	33	132	
STATION 14	34	34	36	36	140	
STATION 16	34	35	34	36	139	
STATION 19	35	37	34	37	143	
STATION 20	33	35	35	38	141	
STATION 21	33	35	33	34	135	
STATION 24	32	34	34	36	136	¹ Background
STATION 29	35	36	36	36	143	
STATION 37	37	37	35	37	146	
STATION 38	33	35	34	36	138	
STATION 39	35	36	35	36	142	

NOTE: ¹Background is not subtracted from the data.

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data.

Pantex
Annual Dose Reading by Sampling Stations.



Pantex
Environmental Air Sample Results

Air Particulate Composite $\mu\text{Ci}/\text{ml}$			P-239	U-234	U-235	U-238
Date	Lab No	Station				
20-Jan-15	AC90124	104	<5.9e-17	<5.8e-16	<5.8e-16	<5.8e-16
05-Feb-15	AC90125	104	<5.7e-17	<5.6e-16	<5.6e-16	<5.6e-16
20-Feb-15	AC90126	105	<4.9e-17	<4.9e-16	<4.9e-16	<4.9e-16
25-Mar-15	AC90127	104	<6.0e-17	<5.9e-16	<5.9e-16	<5.9e-16
31-Mar-15	AC90128	105	<5.1e-17	<5.0e-16	<5.0e-16	<5.0e-16
06-Apr-15	AD01928	105	<4.9e-17	<4.8e-16	<4.8e-16	<4.8e-16
20-Apr-15	AD01921	104	<5.8e-17	<5.8e-16	<5.8e-16	<5.8e-16
22-Apr-15	AD01922	104	<6.0e-17	<6.0e-16	<6.0e-16	<6.0e-16
18-May-15	AD01923	104	<6.1e-17	<6.0e-16	<6.0e-16	<6.0e-16
21-May-15	AD01924	104	<5.9e-17	<5.9e-16	<5.9e-16	<5.9e-16
28-May-15	AD01929	105	<5.7e-17	<5.7e-16	<5.7e-16	<5.7e-16
08-Jun-15	AD01925	104	<6.3e-17	<6.2e-16	<6.2e-16	<6.2e-16
10-Jun-15	AD01926	105	<6.3e-17	<6.2e-16	<6.2e-16	<6.2e-16
30-Jun-15	AD01927	105	<5.7e-17	<5.6e-16	<5.6e-16	<5.6e-16
16-Jul-15	AD06994	105	<5.7e-17	<5.6e-16	<5.6e-16	<5.6e-16
23-Jul-15	AD06995	105	<5.6e-17	<5.6e-16	<5.6e-16	<5.6e-16
30-Jul-15	AD06993	104	<6.0e-17	<6.0e-16	<6.0e-16	<6.0e-16
10-Aug-15	AD06992	104	<6.3e-17	<6.2e-16	<6.2e-16	<6.2e-16
02-Sep-15	AD10121	105	<5.6e-17	<5.5e-16	<5.5e-16	<5.5e-16
28-Sep-15	AD13091	105	<5.7e-17	<5.6e-16	<5.6e-16	<5.6e-16
15-Oct-15	AD15554	105	<5.2e-17	<5.2e-16	<5.2e-16	<5.2e-16
12-Oct-15	AD15555	104	<6.0e-17	<5.9e-16	<5.9e-16	<5.9e-16
05-Nov-15	AD15556	105	<5.2e-17	<5.2e-16	<5.2e-16	<5.2e-16
03-Dec-15	AD17431	105	<5.3e-17	<5.3e-16	<5.3e-16	<5.3e-16
10-Dec-15	AD17432	104	<5.8e-17	<5.8e-16	<5.8e-16	<5.8e-16
19-Nov-15	AD17433	105	<5.1e-17	<5.1e-16	<5.1e-16	<5.1e-16

Pantex
Environmental Sample Results

Food Product	μCi/g		P-239*	U-238	U-234*	U-235*	U-238*	H3
Date	Lab No	Station						
14-Apr-15	AC88674	025	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
15-Jul-15	AC99812	025	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
13-Oct-15	AD10697	025	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
Sediment μCi/g								
13-Jan-15	AC76079	022	<1.0e-7	2.29e-6	1.22e-6	<1.0e-6	<1.0e-6	
14-Apr-15	AC88668	040	<1.0e-7	2.13e-6	1.06e-6	<1.0e-6	1.02e-6	
14-Oct-15	AD10684	015	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
Soil μCi/g								
12-Jan-15	AC76074	014	<1.0e-7	2.08e-6	<1.0e-6	<1.0e-6	1.19e-6	
12-Jan-15	AC76075	018	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
12-Jan-15	AC76076	020	<1.0e-7	2.11e-6	<1.0e-6	<1.0e-6	1.25e-6	
12-Jan-15	AC76077	037	<1.0e-7	2.25e-6	1.08e-6	<1.0e-6	1.17e-6	
12-Jan-15	AC76078	039	<1.0e-7	2.05e-6	<1.0e-6	<1.0e-6	1.17e-6	
14-Apr-15	AC88662	004	<1.0e-7	2.17e-6	1.09e-6	<1.0e-6	1.07e-6	
14-Apr-15	AC88663	008	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
14-Apr-15	AC88664	016	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
14-Apr-15	AC88665	019	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
14-Apr-15	AC88666	021	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
15-Apr-15	AC88667	038	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
15-Jul-15	AC99802	014	<1.0e-7	2.06e-6	<1.0e-6	<1.0e-6	1.11e-6	
15-Jul-15	AC99803	018	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
15-Jul-15	AC99804	020	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
15-Jul-15	AC99805	037	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	1.01e-6	
15-Jul-15	AC99806	039	<1.0e-7	2.02e-6	<1.0e-6	<1.0e-6	<1.0e-6	
14-Oct-15	AD10685	004	<1.0e-7	2.19e-6	<1.0e-6	<1.0e-6	1.19e-6	
13-Oct-15	AD10686	008	<1.0e-7	2.36e-6	1.15e-6	<1.0e-6	1.17e-6	
13-Oct-15	AD10687	016	<1.0e-7	2.15e-6	1.08e-6	<1.0e-6	<1.0e-6	
13-Oct-15	AD10688	019	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
13-Oct-15	AD10689	021	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
13-Oct-15	AD10690	038	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
Vegetation for Milk μCi/g								
12-Jan-15	AC76080	014	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
12-Jan-15	AC76081	018	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
12-Jan-15	AC76082	020	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
12-Jan-15	AC76083	037	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
12-Jan-15	AC76084	039	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
14-Apr-15	AC88670	008	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
14-Apr-15	AC88671	016	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
14-Apr-15	AC88672	019	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
14-Apr-15	AC88673	021	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
14-Apr-15	AC88675	038	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	
15-Jul-15	AC99807	014	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
15-Jul-15	AC99808	018	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
15-Jul-15	AC99809	020	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
15-Jul-15	AC99810	037	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
15-Jul-15	AC99811	039	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
14-Oct-15	AD10691	004	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
14-Oct-15	AD10692	008	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
13-Oct-15	AD10693	016	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
13-Oct-15	AD10694	019	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
13-Oct-15	AD10695	021	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6
13-Oct-15	AD10696	038	<1.0e-7	<2.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	

Pantex
Environmental Sample Results

Water Drinking µCi/ml		P-239*	H-3	U-238	U-234*	U-235*	U-238*
12-Jan-15	AC76087	030	<1.0e-10	<1.0e-6	7.0e-9	5.0e-9	<1.0e-9
14-Apr-15	AC88678	030	<1.0e-10	<1.0e-6	6.9e-9	4.8e-9	<1.0e-9
15-Jul-15	AC99819	030	<1.0e-10	<1.0e-6	7.7e-9	5.3e-9	<1.0e-9
14-Oct-15	AD10701	030	<1.0e-10	<1.0e-6	7.6e-9	4.9e-9	<1.0e-9
Water Ground µCi/ml							
12-Jan-15	AC76086	027	<1.0e-10	<1.0e-6	6.9e-9	4.9e-9	<1.0e-9
14-Apr-15	AC88677	027	<1.0e-10	<1.0e-6	4.1e-9	2.91e-9	<1.0e-9
15-Jul-15	AC99818	027	<1.0e-10	<1.0e-6	5.4e-9	3.82e-9	<1.0e-9
14-Oct-15	AD10700	027	<1.0e-10	<1.0e-6	6.6e-9	4.6e-9	<1.0e-9
Water Surface µCi/ml							
12-Jan-15	AC76085	024	<1.0e-10	<1.0e-6	7.7e-9	4.8e-9	<1.0e-9
14-Apr-15	AC88676	024	<1.0e-10	<1.0e-6	7.1e-9	4.6e-9	<1.0e-9
14-Jul-15	AC99814	022	<1.0e-10	<1.0e-6	<2.0e-9	<1.0e-9	<1.0e-9
14-Jul-15	AC99815	023	<1.0e-10	<1.0e-6	<2.0e-9	<1.0e-9	<1.0e-9
14-Jul-15	AC99816	040	<1.0e-10	<1.0e-6	<2.0e-9	<1.0e-9	<1.0e-9
15-Jul-15	AC99813	015	<1.0e-10	<1.0e-6	<2.0e-9	<1.0e-9	<1.0e-9
15-Jul-15	AC99817	024	<1.0e-10	<1.0e-6	6.2e-9	4.1e-9	<1.0e-9
14-Oct-15	AD10698	015	<1.0e-10	<1.0e-6	<2.0e-9	<1.0e-9	<1.0e-9
14-Oct-15	AD10699	024	<1.0e-10	<1.0e-6	6.2e-9	4.13e-9	<1.0e-9

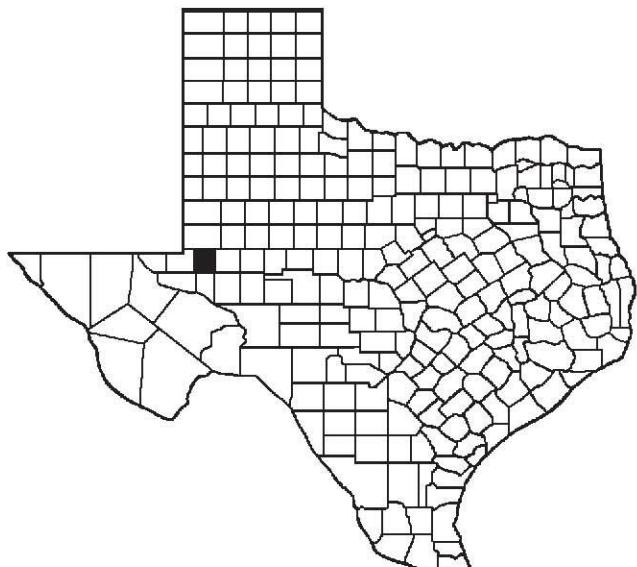
NOTE: * indicates the analysis was by alpha spectrometry, or Ra-226, analysis by radon emanation.

**Indicates the tritium (H-3) analysis for food product, sediment, and vegetation is reported in µCi/ml

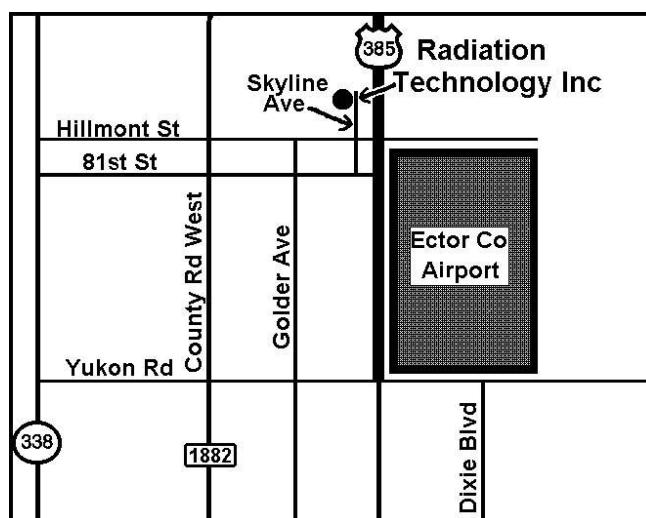
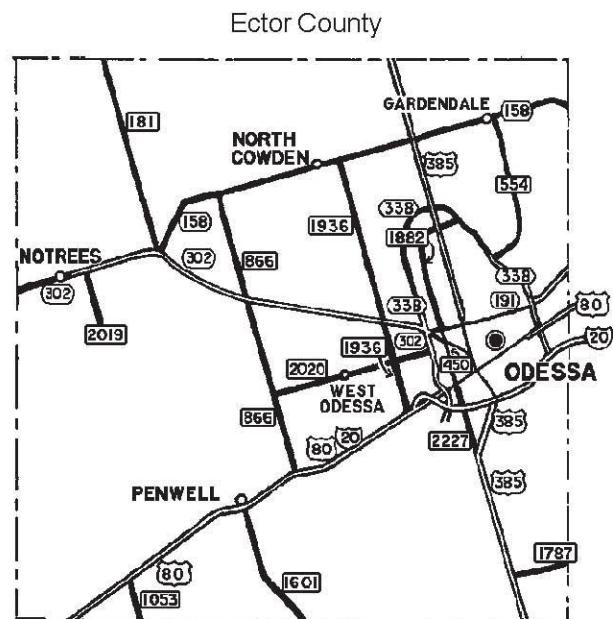
Radiation Technology, Inc.

Radiation Branch Site No. 050

Radiation Technology, Inc. (RTI), located six miles north of downtown Odessa, provides installation, repair, and maintenance of nuclear gauging devices and services for loading and unloading radioactive sources in nuclear gauges. The Radiation Branch surveillance program consists of OSL monitoring.



Shaded area indicates location of Ector County



**Radiation Technology, Inc.
Monitoring Station Locations**

◆ TLD Station	♥ Sample Station	♣ TLD & Sample Station
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Homeland Security -Diagram Removed



**Radiation Technology, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

***OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL) MONITORING RESULTS¹
(QUARTERLY AND ANNUAL READINGS ARE IN MREM)***

	Q1	Q2	Q3	Q4	ANNUAL DOSE	NOTES
STATION 1	28	28	29	31	116	
STATION 2	120	142	119	133	514	
STATION 3	34	34	39	39	146	
STATION 4	28	27	30	31	116	
STATION 8	27	27	28	30	112	¹ Background

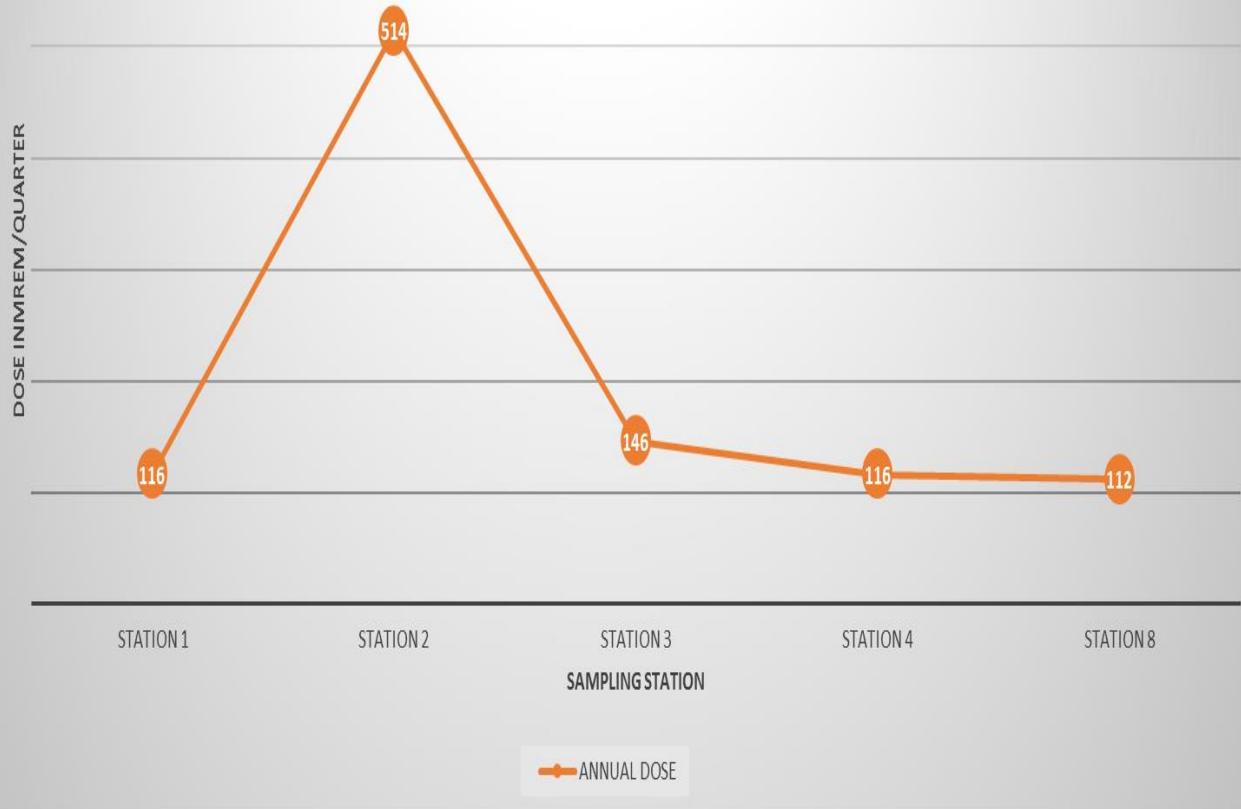
NOTE: ¹Background is not subtracted from the data.

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data.

³An occupancy factor of 1/16 may be applied to this number to obtain radiation dose to members of the public.

Radiation Technology Incorporated.
Annual Dose Reading by Sampling Stations.

ANNUAL OSL DOSE MONITORING RESULTS FOR RADIATION TECHNOLOGY INCORPORATED.

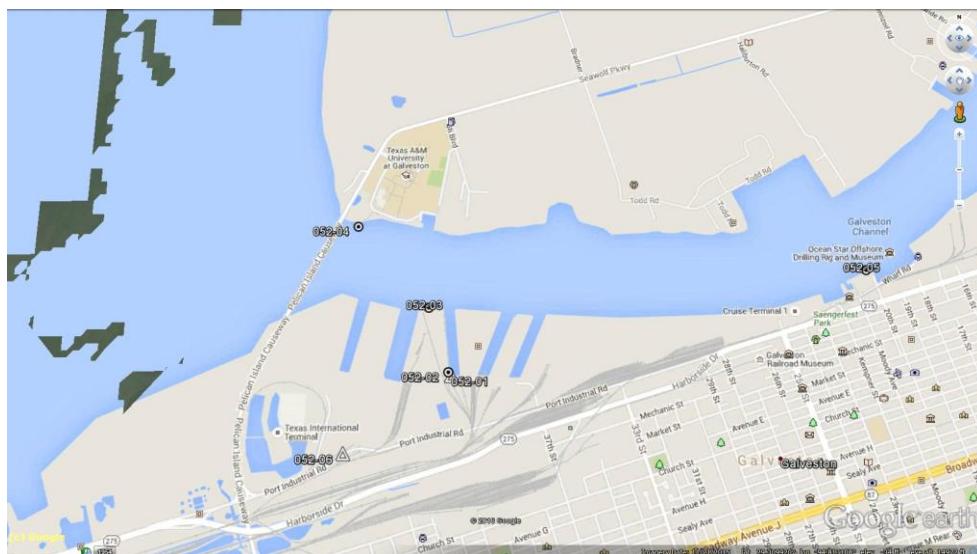
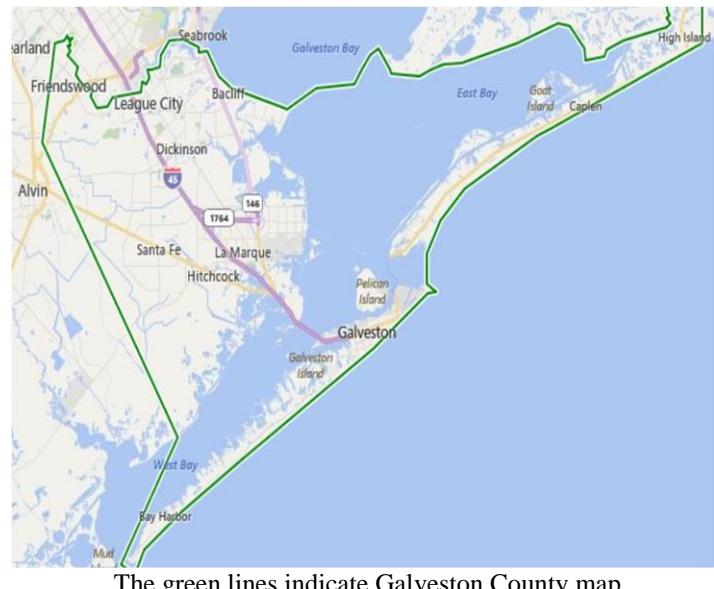
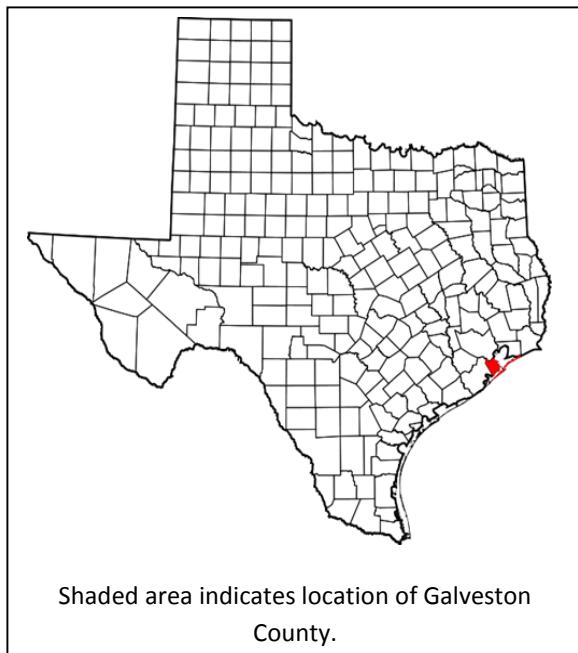


Sturgis

Radiation Branch Site No.:052

In March of 2014 The US Army Corp of Engineers awarded a contract to CB&I Federal Services for the decommissioning, dismantling, and disposal of the Sturgis. The Sturgis is a barge containing a MH1-A nuclear reactor primarily used as a mobile power source. The reactor was de-fueled and decontaminated more than 35 years ago.

The Sturgis was relocated to Galveston Port at Pier 41 in early 2015 to begin decommissioning which is anticipated to be completed within four years. The Radiation Branch surveillance program consists of sampling water and sediment and OSL monitoring.



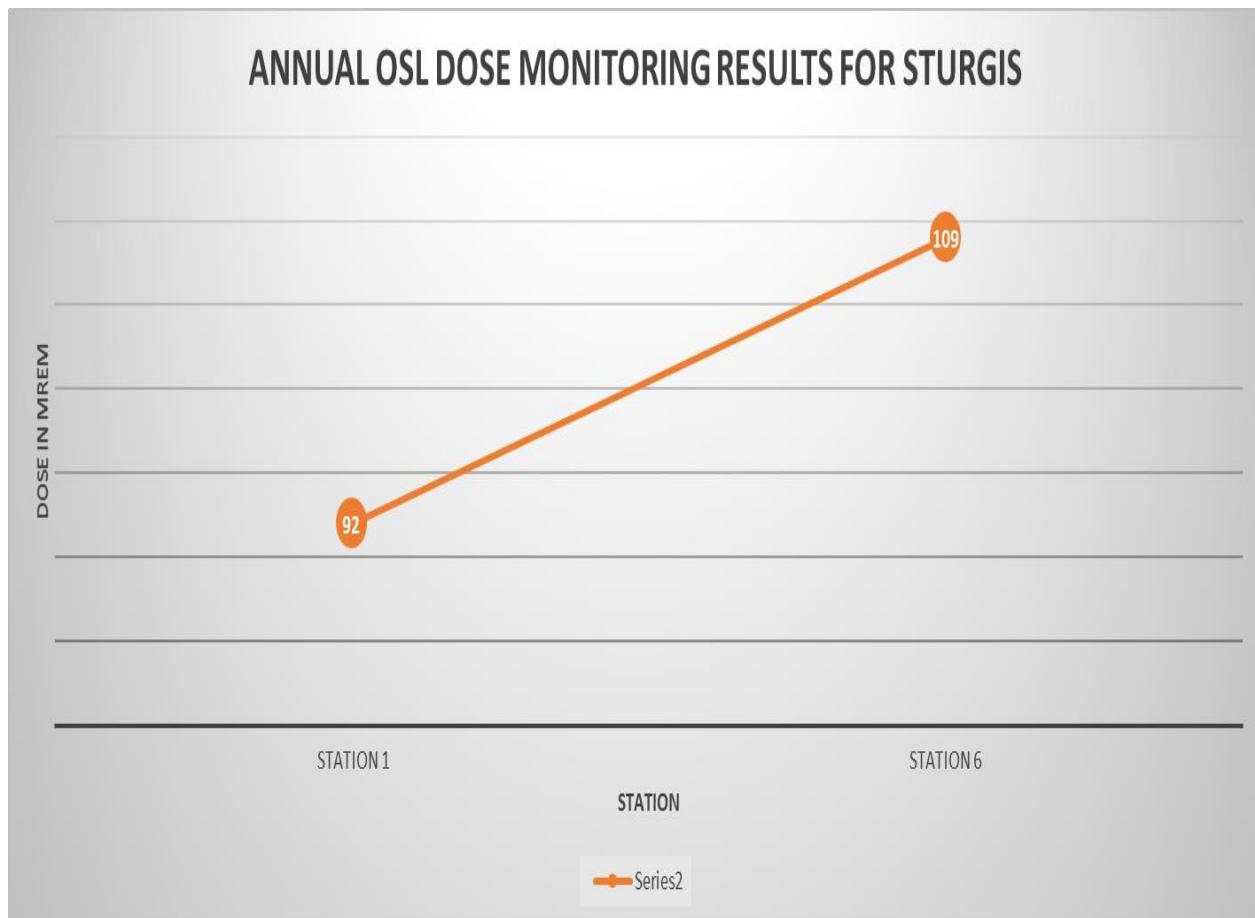
Sturgis
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

**OPTICALLY STIMULATED LUMINESCENT DOSIMETER (OSL)
MONITORING RESULTS¹
(QUARTERLY AND ANNUAL READING ARE IN MREM)**

	Q1	Q2	Q3	Q4	ANNUAL DOSE	NOTES
STATION 1	21	24	23	24	92	
STATION 6		21	22	43	23	109 ¹ Background

NOTE: ¹Background is not subtracted from the data.

Sturgis
Annual Dose Reading by Sampling Stations.



Sturgis
Environmental Sample Results

Sediment		Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	K-40	La-140	Mn-54	Nb-95	Pb-212	Zn-65	Zr-95	Ba-140	
Date	Lab No	Station														
04-Jan-16	AD17165	04	<7.4e-8	<8.0e-8	<9.9e-8	<9.8e-8	<1.7e-7	<1.1e-7	1.03e-5	<8.9e-8	<8.2e-8	<8.7e-8	7.3e-7	<2.2e-7	<1.4e-7	<5.9e-7
04-Jan-16	AD17166	05	<1.3e-7	<12e-7	<13e-7	<1.8e-7	<2.8e-7	<1.9e-7	8.5e-6	<1.7e-7	<1.2e-7	<1.5e-7	5.4e-7	<3.4e-7	<2.7e-7	<3.5e-7
06-Jan-15	AC76032	05	<1.2e-7	<11e-7	<13e-7	<1.5e-7	<2.4e-7	<1.8e-7	9.9e-6	<1.6e-7	<1.2e-7	<1.4e-7	4.2e-7	<3.2e-7	<2.0e-7	<5.0e-7
06-Jan-15	AC76031	04	<1.2e-7	<9.9e-8	<1.1e-7	<1.3e-7	<2.4e-7	<1.9e-7	1.35e-5	<1.6e-7	<1.1e-7	<1.4e-7	6.5e-7	<3.2e-7	<1.8e-7	<5.3e-7
06-Jan-15	AC76030	02	<1.7e-7	<19e-7	<2.7e-7	<2.3e-7	<3.9e-7	<3.1e-7	1.48e-5	<2.6e-7	<1.7e-7	<2.0e-7	7.4e-7	<4.7e-7	<3.2e-7	<8.5e-7

Surface Water

Date	Lab No	Station														
04-Jan-16	AD17162	05	<1.7e-9	<1.8e-9	<1.8e-9	<1.9e-9	<3.2e-9	<2.6e-9	1.15e-7	<2.1e-9	<1.7e-9	<1.8e-9	<3.6e-9	<3.0e-9	<7.3e-9	
04-Jan-16	AD17163	04	<2.2e-9	<2.3e-9	<2.2e-9	<2.3e-9	<4.3e-9	<3.0e-9	8.1e-8	<3.0e-9	<2.1e-9	<2.3e-9	<4.6e-9	<3.9e-9	<8.5e-9	
04-Jan-16	AD17164	02	<1.7e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.3e-9	<2.8e-9	1.12e-7	<2.3e-9	<1.6e-9	<1.9e-9	<3.9e-9	<2.9e-9	<7.6e-9	
06-Jan-15	AC76033	02	<1.7e-9	<1.8e-9	<1.8e-9	<2.0e-9	<3.6e-9	<3.4e-9	2.23e-7	<2.8e-9	<1.7e-9	<2.0e-7	7.4e-7	<4.7e-7	<3.2e-7	<8.8e-9
06-Jan-15	AC76034	02	<1.7e-9	<1.8e-9	<1.8e-9	<2.0e-9	<3.7e-9	<3.9e-9	2.23e-7	<2.7e-9	<1.6e-9	<2.0e-9	<3.9e-9	<3.2e-9	<9.1e-9	
06-Jan-15	AC76035	04	<1.8e-9	<1.9e-9	<1.9e-9	<1.9e-9	<3.8e-9	<4.1e-9	2.48e-7	<3.0e-9	<1.7e-9	<2.0e-9	1.57e-8	<3.9e-9	<3.2e-9	<9.5e-9
06-Jan-15	AC76036	05	<1.8e-9	<1.7e-9	<1.8e-9	<1.9e-9	<3.7e-9	<4.3e-9	2.25e-7	<3.1e-9	<1.7e-9	<2.1e-9	<4.2e-9	<3.2e-9	<1.0e-8	

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Appendices

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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP Series 26
 (TDHL01) Texas Department of State Health Services Laboratory
 1100 W 49th Street
 Austin, TX 78756

MAPEP-12-MaS26: Radiological and inorganic combined soil standard

Analyte	Inorganic				Units: (mg/kg)			
	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Arsenic	NR	48.2				33.7 - 62.7		
Barium	NR	655				459 - 852		
Beryllium	NR	47.5				33.3 - 61.8		
Cadmium	NR	10.6				7.4 - 13.8		
Chromium	NR	89.3				62.5 - 116.1		
Cobalt	NR	113				79 - 147		
Copper	NR	206				144 - 268		
Lead	NR	74.4				52.1 - 96.7		
Mercury	NR	0.0733				0.0513 - 0.0953		
Nickel	NR	186				130 - 242		
Selenium	NR	14.2				9.9 - 18.5		
Silver	NR	85.5				59.9 - 111.2		
Technetium-99	NR	0.000596				0.000417 - 0.000775		
Thallium	NR	14.4				10.1 - 18.7		
Uranium-235	NR	0.0653				0.0457 - 0.0849		
Uranium-238	NR	26.5				18.6 - 34.5		
Uranium-Total	NR	26.5				18.6 - 34.5		
Vanadium	NR	104				73 - 135		
Zinc	NR	286				200 - 372		

Analyte	Radiological				Units: (Bq/kg)			
	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	145	159	A		-8.8	111 - 207		9
Cesium-134	748	828	A		-9.7	580 - 1076		10 L
Cesium-137	2.15		A			False Positive Test		
Cobalt-57	1160	1179	A		-1.6	825 - 1533		20 L
Cobalt-60	0.93	1.56	A	(17)		Sensitivity Evaluation		
Iron-55	NR	1370				959 - 1781		
Manganese-54	578	558	A		3.6	391 - 725		14 L
Nickel-63	NR	862				603 - 1121		
Plutonium-238	128	136	A		-5.9	95 - 177		12
Plutonium-239/240	59.0	65.8	A		-10.3	46.1 - 85.5		6.5
Potassium-40	1520	1491	A		1.9	1044 - 1938		40 L
Strontium-90	414	392	A		5.6	274 - 510		20
Technetium-99	NR	374				262 - 486		

Radiological							Units: (Bq/kg)		
Analyte	Result	Ref			Bias (%)	Acceptance Range	Unc Value	Unc Flag	
		Value	Flag	Notes					
Uranium-234/233	61.8	68.1	A		-9.3	47.7 - 88.5		5.2	
Uranium-238	326	329	A		-0.9	230 - 428		23	
Zinc-65	682	642	A		6.2	449 - 835		17 L	

Radiological Reference Date: February 1, 2012

MAPEP-12-MaW26: Radiological and inorganic combined water standard							Units: (mg/L)		
Inorganic							Units: (mg/L)		
Analyte	Result	Ref			Bias (%)	Acceptance Range	Unc Value	Unc Flag	
		Value	Flag	Notes					
Antimony	NR	2.71				1.90 - 3.52			
Arsenic	NR	<0.01				False Positive Test			
Barium	NR	0.808				0.566 - 1.050			
Beryllium	NR	0.808				0.566 - 1.050			
Cadmium	NR	0.418				0.293 - 0.543			
Chromium	NR	1.73				1.21 - 2.25			
Cobalt	NR	1.45				1.02 - 1.89			
Copper	NR	0.929				0.650 - 1.208			
Lead	NR	0.779				0.545 - 1.013			
Mercury	NR	3.75E-3				0.00263 - 0.00488			
Nickel	NR	<0.01				False Positive Test			
Selenium	NR	0.223				0.156 - 0.290			
Technetium-99	NR	4.45E-5				0.00003 - 0.00006			
Thallium	NR	0.846				0.592 - 1.100			
Uranium-235	NR	4.50E-4				0.00032 - 0.00059			
Uranium-238	NR	0.222				0.155 - 0.289			
Uranium-Total	NR	0.222				0.155 - 0.289			
Vanadium	NR	1.44				1.01 - 1.87			
Zinc	NR	2.28				1.60 - 2.96			

Radiological							Units: (Bq/L)		
Analyte	Result	Ref			Bias (%)	Acceptance Range	Unc Value	Unc Flag	
		Value	Flag	Notes					
Americium-241	1.62	1.63	A		-0.6	1.14 - 2.12		0.10	
Cesium-134	-0.20		A			False Positive Test			
Cesium-137	42.0	39.9	A		5.3	27.9 - 51.9		1.2 L	
Cobalt-57	33.8	32.9	A		2.7	23.0 - 42.8		0.8 L	
Cobalt-60	24.9	23.72	A		5.0	16.60 - 30.84		0.5 L	
Hydrogen-3	441	437	A		0.9	306 - 568		11 L	
Iron-55	NR	81.9				57.3 - 106.5			
Manganese-54	33.4	31.8	A		5.0	22.3 - 41.3		0.9 L	
Nickel-63	NR	60.0				42.0 - 78.0			
Plutonium-238	0.581	0.629	A		-7.6	0.440 - 0.818		0.058	
Plutonium-239/240	1.14	1.34	A		-14.9	0.94 - 1.74		0.10	
Potassium-40	151	142	A		6.3	99 - 185		5	

Radiological							Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Strontium-90	-0.012		A			False Positive Test	0.036		
Technetium-99	NR	27.9				19.5 - 36.3			
Uranium-234/233	0.371	0.392	A		-5.4	0.274 - 0.510	.039		
Uranium-238	2.95	2.76	A		6.9	1.93 - 3.59	0.21		
Zinc-65	-0.170		A			False Positive Test	0.170		

Radiological Reference Date: February 1, 2012

MAPEP-12-GrW26: Gross alpha/beta water

Radiological							Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Gross alpha	1.70	2.14	A		-20.6	0.64 - 3.64	0.07		
Gross beta	6.12	6.36	A		-3.8	3.18 - 9.54	0.12	L	

Radiological Reference Date: February 1, 2012

MAPEP-12-RdF26: Radiological air filter

Inorganic							Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Uranium-235	NR	0.0187				0.0131 - 0.0243			
Uranium-238	NR	10.0				7.0 - 13.0			
Uranium-Total	NR	10.0				7.0 - 13.0			

Radiological							Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Americium-241	0.073	0.073	A		0.0	0.051 - 0.095	0.007		
Cesium-134	2.14	2.38	A		-10.1	1.67 - 3.09	0.04	L	
Cesium-137	1.94	1.79	A		8.4	1.25 - 2.33	0.08		
Cobalt-57	0.027		A			False Positive Test	0.027		
Cobalt-60	2.25	2.182	A		3.1	1.527 - 2.837	0.06	L	
Manganese-54	3.51	3.24	A		8.3	2.27 - 4.21	0.10	L	
Plutonium-238	0.001	0.0015	A	(17)		Sensitivity Evaluation	0.001		
Plutonium-239/240	0.104	0.097	A		7.2	0.068 - 0.126	0.012		
Strontium-90	0.013		A			False Positive Test	0.008		
Uranium-234/233	0.019	0.0188	A		1.1	0.0132 - 0.0244	0.004	H	
Uranium-238	0.131	0.124	A		5.6	0.087 - 0.161	0.013		
Zinc-65	3.19	2.99	A		6.7	2.09 - 3.89	0.13		

Radiological Reference Date: February 1, 2012

MAPEP-12-GrF26: Gross alpha/beta air filter

Radiological

Units: (Bq/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.759	1.2	A		-36.8	0.4 - 2.0		0.024
Gross beta	2.25	2.4	A		-6.3	1.2 - 3.6		0.03 L

Radiological Reference Date: February 1, 2012

MAPEP-12-RdV26: Radiological vegetation

Inorganic

Units: (ug/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0434				0.0304 - 0.0564		
Uranium-238	NR	22.4				15.7 - 29.1		
Uranium-Total	NR	22.4				15.7 - 29.1		

Radiological

Units: (Bq/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.007		N	(1)		False Positive Test	0.002	
Cesium-134	9.84	8.43	A		16.7	5.90 - 10.96	0.17	L
Cesium-137	-0.064		A			False Positive Test	0.064	
Cobalt-57	15.4	12.0	W		28.3	8.4 - 15.6	0.4	L
Cobalt-60	6.69	6.05	A		10.6	4.24 - 7.87	0.17	L
Manganese-54	0.009		A			False Positive Test	0.009	
Plutonium-238	0.179	0.219	A		-18.3	0.153 - 0.285	0.021	
Plutonium-239/240	0.148	0.152	A		-2.6	0.106 - 0.198	0.018	
Strontium-90	1.98	2.11	A		-6.2	1.48 - 2.74	0.04	L
Uranium-234/233	0.086	0.0411	N		109.2	0.0288 - 0.0534	0.011	
Uranium-238	0.307	0.278	A		10.4	0.195 - 0.361	0.026	
Zinc-65	9.60	8.90	A		7.9	6.23 - 11.57	0.42	

Radiological Reference Date: February 1, 2012

Notes:

(1) = False Positive

(17) = NOT DETECTED - reported a statistically zero result

Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP Series 27
 (TDHL01) Texas Department of State Health Services Laboratory
 1100 W 49th Street
 Austin, TX 78756

MAPEP-12-MaS27: Radiological and inorganic combined soil standard

Inorganic						Units: (mg/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	111.5				78.1 - 145.0		
Arsenic	NR	55.7				39.0 - 72.4		
Barium	NR	896				627 - 1165		
Beryllium	NR	47.0				32.9 - 61.1		
Cadmium	NR	15.4				10.8 - 20.0		
Chromium	NR	99.0				69.3 - 128.7		
Cobalt	NR	127				89 - 165		
Copper	NR	204				143 - 265		
Lead	NR	97.6				68.3 - 126.9		
Mercury	NR	0.172				0.120 - 0.224		
Nickel	NR	300				210 - 390		
Selenium	NR	17.7				12.4 - 23.0		
Silver	NR	95.5				66.9 - 124.2		
Technetium-99	NR	0.000748				0.000524 - 0.000972		
Thallium	NR	91.0				63.7 - 118.3		
Uranium-235	NR	0.0533				0.0373 - 0.0693		
Uranium-238	NR	21.1				14.8 - 27.4		
Uranium-Total	NR	21.2				14.8 - 27.6		
Vanadium	NR	271				190 - 352		
Zinc	NR	549				384 - 714		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	106	111	A		-4.5	78 - 144		8
Cesium-134	896	939	A		-4.6	657 - 1221		11 L
Cesium-137	1106	1150	A		-3.8	805 - 1495		31 L
Cobalt-57	1246	1316	A		-5.3	921 - 1711		26 L
Cobalt-60	520	531	A		-2.1	372 - 690		9 L
Iron-55	NR	508				356 - 660		
Manganese-54	911	920	A		-1.0	644 - 1196		22 L
Nickel-63	NR	406				284 - 528		
Plutonium-238	91.3	105.8	A		-13.7	74.1 - 137.5		8.7
Plutonium-239/240	117	134	A		-12.7	94 - 174		11
Potassium-40	625	632	A		-1.1	442 - 822		19
Strontium-90	565	508	A		11.2	356 - 660		21

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	469				328 - 610		
Uranium-234/233	59	60.3	A		-2.2	42.2 - 78.4		5
Uranium-238	248	263	A		-5.7	184 - 342		17
Zinc-65	625	606	A		3.1	424 - 788	15	L

Radiological Reference Date: August 1, 2012

MAPEP-12-MaW27: Radiological and inorganic combined water standard						Units: (mg/L)		
Inorganic						Units: (mg/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	3.38				2.37 - 4.39		
Arsenic	NR	1.13				0.79 - 1.47		
Barium	NR	4.00				2.80 - 5.20		
Beryllium	NR					False Positive Test		
Cadmium	NR	0.506				0.354 - 0.658		
Chromium	NR	0.561				0.393 - 0.729		
Cobalt	NR	3.11				2.18 - 4.04		
Copper	NR					False Positive Test		
Lead	NR	2.06				1.44 - 2.68		
Mercury	NR	0.00349				0.00244 - 0.00454		
Nickel	NR	3.99				2.79 - 5.19		
Selenium	NR					False Positive Test		
Technetium-99	NR	7.30E-06				0.000005 - 0.000009		
Thallium	NR	2.47				1.73 - 3.21		
Uranium-235	NR	0.00052				0.00036 - 0.00068		
Uranium-238	NR	0.268				0.188 - 0.348		
Uranium-Total	NR	0.268				0.188 - 0.348		
Vanadium	NR	1.59				1.11 - 2.07		
Zinc	NR	3.27				2.29 - 4.25		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.02	1.06	A		-3.8	0.74 - 1.38		0.08
Cesium-134	22.5	23.2	A		-3.0	16.2 - 30.2		0.3 L
Cesium-137	17.9	16.7	A		7.2	11.7 - 21.7		0.5 L
Cobalt-57	31.2	29.3	A		6.5	20.5 - 38.1		0.7 L
Cobalt-60	0.21		A			False Positive Test		0.10
Hydrogen-3	333	334	A		-0.3	234 - 434		5 L
Iron-55	NR	89.3				62.5 - 116.1		
Manganese-54	19.3	17.8	A		8.4	12.5 - 23.1		0.5 L
Nickel-63	NR	66.3				46.4 - 86.2		
Plutonium-238	0.024	0.013	A (17)			Sensitivity Evaluation	0.009	
Plutonium-239/240	1.30	1.61	A		-19.3	1.13 - 2.09		0.12

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Potassium-40	146	134	A		9.0	94 - 174		5
Strontium-90	11.8	12.2	A		-3.3	8.5 - 15.9		0.2 L
Technetium-99	NR	4.58				3.21 - 5.95		
Uranium-234/233	0.426	0.451	A		-5.5	0.316 - 0.586		0.041
Uranium-238	2.99	3.33	A		-10.2	2.33 - 4.33		0.21
Zinc-65	29.2	25.9	A		12.7	18.1 - 33.7		0.8 L

Radiological Reference Date: August 1, 2012

MAPEP-12-GrW27: Gross alpha/beta water						Units: (Bq/L)		
Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.94	1.79	A		8.4	0.54 - 3.04		0.07
Gross beta	9.40	9.1	A		3.3	4.6 - 13.7		0.14 L

Radiological Reference Date: August 1, 2012

MAPEP-12-RdF27: Radiological air filter						Units: (ug/sample)		
Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0148				0.0104 - 0.0192		
Uranium-238	NR	8.0				5.6 - 10.4		
Uranium-Total	NR	8.1				5.7 - 10.5		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.080	0.0780	A		2.6	0.0546 - 0.1014		0.008
Cesium-134	2.44	2.74	A		-10.9	1.92 - 3.56		0.05 L
Cesium-137	0.023		A			False Positive Test		0.012
Cobalt-57	1.98	1.91	A		3.7	1.34 - 2.48		0.06
Cobalt-60	1.79	1.728	A		3.6	1.210 - 2.246		0.05 L
Manganese-54	2.56	2.36	A		8.5	1.65 - 3.07		0.08
Plutonium-238	0.053	0.0625	A	(17)	-15.2	0.0438 - 0.0813		0.007
Plutonium-239/240	0.001	0.00081	A	(17)		Sensitivity Evaluation		0.001
Strontium-90	1.11	1.03	A		7.8	0.72 - 1.34		0.03 L
Uranium-234/233	0.014	0.0141	A		-0.7	0.0099 - 0.0183		0.003 H
Uranium-238	0.093	0.100	A		-7.0	0.070 - 0.130		0.010
Zinc-65	-0.006		A			False Positive Test		0.003

Radiological Reference Date: August 1, 2012

MAPEP-12-GrF27: Gross alpha/beta air filter

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.873	0.97	A		-10.0	0.29 - 1.65	0.026	L
Gross beta	1.88	1.92	A		-2.1	0.96 - 2.88	0.03	L

Radiological Reference Date: August 1, 2012
MAPEP-12-RdV27: Radiological vegetation

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0240				0.0168 - 0.0312		
Uranium-238	NR	12.7				8.9 - 16.5		
Uranium-Total	NR	12.7				8.9 - 16.5		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.168	0.163	A		3.1	0.114 - 0.212	0.017	
Cesium-134	6.79	6.51	A		4.3	4.56 - 8.46	0.17	L
Cesium-137	4.85	4.38	A		10.7	3.07 - 5.69	0.20	
Cobalt-57	6.71	5.66	A		18.6	3.96 - 7.36	0.21	
Cobalt-60	5.34	5.12	A		4.3	3.58 - 6.66	0.15	L
Manganese-54	3.43	3.27	A		4.9	2.29 - 4.25	0.15	
Plutonium-238	0.201	0.187	A		7.5	0.131 - 0.243	0.025	
Plutonium-239/240	0.149	0.123	W		21.1	0.086 - 0.160	0.020	
Strontium-90	0.064		N	(1)		False Positive Test	0.014	
Uranium-234/233	0.093	0.0257	N		261.9	0.0180 - 0.0334	0.013	
Uranium-238	0.256	0.158	N		62.0	0.111 - 0.205	0.026	
Zinc-65	0.456		A			False Positive Test	0.228	

Radiological Reference Date: August 1, 2012
Notes:

(1) = False Positive

(17) = NOT DETECTED - reported a statistically zero result

Laboratory Services Section
Environmental Sciences Branch

Each laboratory procedure is performed under unique analysis conditions. Variations occur in volumes, counting efficiencies, detector backgrounds, count times, decay factors, chemical recoveries, and other analysis parameters which affect the sensitivity of the measurement. The detection limits listed in the following tables were derived using standard analysis conditions and are routinely achievable on normal samples. If greater sensitivity is required, it is usually possible to adjust detection limits by changing one or more of these parameters.

Detection Limits for Gamma Spectroscopy
Sample Type

Isotope	Soil - Sediment		Air Filter		Water - Milk		Vegetation - Fish	
	$\mu\text{Ci/g}$	pCi/kg	$\mu\text{Ci/filter}$	pCi/filter	$\mu\text{Ci/ml}$	pCi/l	$\mu\text{Ci/g}$	pCi/kg
Ac-228	2.0E-07	2.0E+02	2.0E-05	2.0E+01	2.0E-08	2.0E+01	1.0E-07	1.0E+02
Ag-110m	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Am-241	1.0E-07	1.0E+02	5.0E-06	5.0E+00	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Ba-140	4.0E-07	4.0E+02	2.0E-05	2.0E+01	2.0E-08	2.0E+01	1.0E-07	1.0E+02
Be-7	1.0E-06	1.0E+03	3.0E-05	3.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
Bi-212	5.0E-07	5.0E+02	3.0E-05	3.0E+01	1.0E-07	1.0E+02	1.0E-07	1.0E+02
Bi-214	2.0E-07	2.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Co-57	1.0E-07	1.0E+02	2.0E-06	2.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Co-58	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Co-60	1.0E-07	1.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Cr-51	1.0E-06	1.0E+03	3.0E-05	3.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
Cs-134	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Cs-137	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Fe-59	1.0E-07	1.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
I-125	1.0E-06	1.0E+03	1.0E-05	1.0E+01	2.0E-08	2.0E+01	1.0E-07	1.0E+02
I-131*	1.0E-07	1.0E+02	5.0E-06	5.0E+00	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Ir-192	1.0E-07	1.0E+02	5.0E-06	5.0E+00	1.0E-08	1.0E+01	1.0E-07	1.0E+02
K-40	2.0E-06	2.0E+03	1.0E-04	1.0E+02	4.0E-08	4.0E+01	1.0E-07	1.0E+02
La-140	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Mn-54	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Nb-95	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Pb-210	4.0E-07	4.0E+02	2.0E-05	2.0E+01	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Pb-212	2.0E-07	2.0E+02	1.0E-05	1.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
Pb-214	2.0E-07	2.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Ra-226	2.0E-06	2.0E+03	1.0E-04	1.0E+02	1.0E-07	1.0E+02	2.0E-07	2.0E+02
Sb-124	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Sc-46	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Th-230	1.0E-05	1.0E+04	3.0E-04	3.0E+02	1.0E-06	1.0E+03	2.0E-06	2.0E+03
Th-234	1.0E-06	1.0E+03	4.0E-05	4.0E+01	1.0E-07	1.0E+02	2.0E-07	2.0E+02
Tl-208	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
U-235	4.0E-07	4.0E+02	2.0E-05	2.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
U-238	1.0E-06	1.0E+03	3.0E-05	3.0E+01	6.0E-08	6.0E+01	2.0E-07	2.0E+02
Zn-65	2.0E-07	2.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Zr-95	1.0E-07	1.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02

*Air iodine can be determined by using cartridges. Detection limits are 2.0E-14 $\mu\text{Ci/ml}$ or 2.0E-02 pCi/m^3 .

**Laboratory Services Section
Environmental Sciences Branch**

**Detection Limits for Chemical Analysis Procedures
Sample Type**

Isotope	Soil - Sediment		Air Filter		Water - Milk		Vegetation - Fish	
	µCi/g	pCi/kg	µCi/filter	pCi/filter	µCi/ml	pCi/l	µCi/g	pCi/kg
Alpha	6.1E-06	6.1E+03	7.0E-07	7.0E-01	3.3E-09	3.3E+00	3.3E-06	3.3E+03
Beta	1.2E-05	1.2E+04	1.3E-06	1.3E+00	6.6E-09	6.6E+00	6.6E-06	6.6E+03
C-14					3.0E-07	3.0E+02		
H-3			2.0E-06	2.0E+00	1.0E-06	1.0E+03		
Ra-226	4.0E-07	4.0E+02	8.0E-07	8.0E-01	8.0E-10	8.0E-01	4.0E-07	4.0E+02
Ra-228	1.9E-06	1.9E+03	3.9E-06	3.9E+00	3.9E-09	3.9E+00	1.9E-06	1.9E+03
Sr-89	9.0E-07	9.0E+02	1.7E-06	1.7E+00	1.7E-09	1.7E+00	9.0E-07	9.0E+02
Sr-90	1.3E-06	1.3E+03	2.7E-06	2.7E+00	2.7E-09	2.7E+00	1.3E-06	1.3E+03

**Detection Limits for Alpha Spectroscopy
Sample Type**

Isotope	Soil - Sediment		Air Filter		Water - Milk		Vegetation - Fish	
	µCi/g	pCi/kg	µCi/filter	pCi/filter	µCi/ml	pCi/l	µCi/g	pCi/kg
Am-241	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
Pu-239	2.0E-07	2.0E+02	2.0E-07	2.0E-01	2.0E-10	2.0E-01	2.0E-07	2.0E+02
Th-228	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
Th-230	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
Th-232	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
U-234	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
U-238	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03

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